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The Army Aural Rehabilitation Program

Edward H. Truex, Jr.*

WHEN a nation is at war the demands made upon its resources of men and material result in an acceleration of all its metabolic processes. Vast projects are undertaken to produce new machines of war. In every realm of science extensive programs of research are instituted to improve those machines for the purpose of destroying the enemy. The military medical services are in a sense comparable, in that they have as their primary objective the maintenance or restoration of fighting manpower to manipulate the weapons thus created. To that end, all research in military medicine is directed. Secondarily, however, no effort or expense is spared to repair the disabled service man and restore him to civilian life as nearly normal as possible.

During the past twenty-five years the practice of medicine has become a science of specialities which is exemplified in the tremendous organization of socialized medicine that the Army Medical Department has constructed. This system reaches its pinnacle in the fifty-odd general hospitals in this country which are designated as centers specializing in orthopedics, neuropsychiatrics, neurosurgery, in lesions of the vascular system, in visual and auditory abnormalities and others in various anatomical or functional categories.

This presentation deals with the auditory abnormalities and what the Army is doing for the aurally handicapped soldiers. Three hospitals have been designated as centers for aural rehabilitation: Deshon General Hospital in Butler, Pennsylvania, Borden General Hospital in Chickasha, Oklahoma, and Hoff General Hospital at Santa Barbara, California. The purpose of the program is to restore physically defective men to duty, men who can replace other men for fighting, but secondarily it aims to return them to civilian life with a minimum of disability.

Unfortunately, defective hearing has always been a thorn in the halo of medical practice. Defective hearing is a physical abnormality which should be treated by a system of therapy encompassing a number of specialized measures. The Aural Rehabilitation Program exemplifies the creative efforts of Army medicine and it is hoped that it will have a profound and lasting effect on the conscience of civilian medical practice.

In this program it is not intended that the medical officer carry out all

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of the technical therapeutic procedures involved. Skilled specialists have been assigned to the project, in addition to the medical staff, to apply the acoustical, pedagogical and psychological measures of treatment.

Patient Load

SINCE November 1, 1943, when Deshon began functioning as a hearing center, more than 1,200 patients have been admitted and about 900 discharged from this hospital. Approximately one-third of the latter number have been returned to active duty. A large percentage of these 1,200 patients had varying degrees of defective hearing before induction, but according to army physical standards perfect hearing acuity is not deemed necessary, even for combat duty. Recently the percentage of battle casualties has risen as a direct result of the violence of the European campaign. From now on the 'line of duty, yes' cases will dominate our patient-load and the blast of high explosives will probably become the major etiological factor in our final diagnoses. It may be of interest to you to know that every man whose ears are damaged in enemy action is considered wounded and justly receives the Purple Heart decoration. It is certain that the man who is deafened by the explosion of an enemy shell is more permanently and more profoundly injured than the man who receives a rifle bullet wound in the soft part of his leg.

Only those men whose loss of hearing amounts to thirty decibels or more in the better ear (or approximately 28-30 per cent) in the pure tone speech frequencies are eligible for admission to one of the three centers. This means that many others, perhaps thousands, will sustain some hearing impairment in the army but will not be handicapped to a degree necessitating rehabilitation. These men will undoubtedly be potential candidates for therapy during the next decade or two.

Aims and Facilities

THE activities of the three centers are coordinated by a staff in the Surgeon General's Office. Each is permitted considerable originality in methods and procedures, but basically it is the aim of each to (1) render maximum medical and surgical benefit, (2) teach the art of lip reading, (3) correct and prevent speech deterioration, (4) supply the best available hearing aid, (5) train the patient in the use of his hearing aid, and (6) evaluate the mental and emotional characteristics of each patient and guide him into the proper channels of adjustment to his handicap. Every phase of the project is kept flexible in order that improvements may be instituted readily.

Two permanent buildings have been constructed at Deshon General Hospital for the hard of hearing service. They contain the administrative offices for all personnel, a medical examining room, thirty small rooms for individual lip reading and speech instruction, one large classroom for group practice and motion picture projection, Red Cross offices, psychological testing rooms, an elaborately equipped acoustic clinic with its five sound-treated rooms, and the auricular training section which is divided into rooms for special training procedures. A new laboratory has just been equipped in an adjacent building to be used exclusively for the manufacturing of personal plastic ear pieces which are needed for air-conduction hearing aids.

Admission and Processing

THE staff has been built up slowly according to the demands made upon the various departments. At the present time a staff of fifty-two is engaged full time in this work, and additions are anticipated in the near future.

All patients who are admitted to Deshon because of defective hearing

acuity are kept apart insofar as possible from the atmosphere of disability and poor health that pervades any hospital. They are housed in barracks, not hospital wards, and must carry out all the necessary duties involved in maintaining cleanliness and orderliness of their living quarters.

After being assigned quarters each man is given a 'routing slip' which contains the names of persons in the Rehabilitation Clinic that he must see. A processing period of three to five days follows:

1. He is interviewed by the registrar (a former patient wearing a hearing aid) who records general information about the patient for circulation throughout the clinic. The registrar gives the new man a clear picture of the program ahead of him.
2. He is interviewed by a trained social worker in the Red Cross who assists in the solution of the innumerable economic, social and domestic problems that arise during his period of hospitalization.
3. He is examined by the medical officers who take a complete anamnesis of the ear condition and carry out a thorough physical evaluation with special emphasis on the auditory mechanism. X-ray examinations of the heart and lungs are made. Dental repair is instituted. Routinely, blood analyses are carried out and visual disturbances are given maximum correction.
4. The acoustic section then subjects the patient to a series of tests to determine the character and degree of hearing loss for pure tones and for connected speech. Ear impressions are then taken for the casting of lucite ear pieces, if testing indicates that a hearing aid will be given.
5. In the auricular training department carefully planned tests of speech discrimination are given with and without a group type of hearing aid. The patient's ability to recognize sounds, to determine sound direction, and to use the telephone are evaluated. The circumstances under which deficient hearing gives him most trouble are recorded. His training needs are thereby determined and planned.
6. This procedure is followed by an interview with one of the speech teachers who analyzes his existing speech impairments and estimates the possible deterioration from the character of his hearing deficiency. Remedial and preventive measures are scheduled.
7. The principal of the school of lip reading describes the advantages and limitations of lip reading to the patient and discusses the curriculum with him.
8. Lastly, he is seen by a psychologist who by interview and by psychometric examination determines the intelligence level, emotional status, and vocational aptitude of the subject.

The cumulative record is passed from one examiner to the next. When all data have been collected a review is made and the individual is scheduled for the therapeutic measures that he needs. At this point in his period of hospitalization he is usually given a furlough to see his family. A liberal pass and furlough system has been adopted as part of the therapeutic program, especially for those men who have been returned from combat areas.

Rehabilitation

THE average length of hospital stay for an individual is about ninety days. Durjng this period of time he is obliged to adhere to a rigorous schedule of activity involving every phase of rehabilitation.

Medical

From the medical and surgical points of view all conventional methods of therapy are employed in an effort to restore as much as possible of his natural hearing acuity. Results are far from encouraging. A few cases are considered amenable to the fenestration operation, but the benefits of this procedure are so unpredictable at the present time that it is not being performed in army hospitals. The vast majority of our patients have a mixed or perceptive type of hearing deficiency, according to the usual testing methods, indicating damage to the neural mechanism of the ear. Since cure of these cases is out of the question and significant beneficial medical therapy is only a forlorn hope, hearing aids combined with speech reading are the mainstays of treatment.

Hearing Aids

The government has authorized us to purchase any hearing aid that is accepted by the Council on Physical Medicine of the American Medical Association for any soldier regardless of the cause or duration of his disability when examination shows that an aid will materially enhance the hearing of the individual concerned. The methods that are ordinarily used for fitting hearing aids to the civilian are not commendable. As a matter of fact the use of the word *fitting* should be reserved for a very limited number of organizations that are endeavoring to place hearing aid selection within the realm of scientific methodology. The selective systems used by the army hospitals are not exactly the same, enough originality of procedure being allowed to encourage research out of which constant improvements can be developed. At Deshon the selective process is based on the theory that optimum speech reception is the main objective of the deafened man. Pure tone testing acts as a guide in the fitting of a hearing aid by indicating which ear is to be fitted and whether air conduction or bone conduction receivers should be more beneficial. In addition it assists in the diagnosis of the type and character of the aural lesion.

Pre-selective trials of all instruments are given, each instrument being fitted and adjusted by an experienced member of the acoustic staff. The patient uses each one in and about the hospital for varying lengths of time whereby he makes a subjective selection of three or four instruments that perform best for him. The auricular training department plays an important part in this preselective process by furnishing a planned program of music, noise and conversation--conditions under which the patient compares instruments. The final selection of a hearing aid for an individual is based on a series of comparative evaluation tests of those instruments that he has chosen using carefully controlled speech as the testing medium. That instrument which performs best in this series of tests is the one that is purchased for him.

Auricular Training

Much of the dissatisfaction that has existed heretofore with hearing aids has resulted from a lack of knowledge of their limitations on the part of the patient. One cannot expect a restoration of normal hearing through a mechanical contrivance. These instruments merely amplify all sounds within certain frequency ranges and transmit them to the damaged ear for reception which in turn sends them on to the brain in distorted patterns. The brain must interpret these sound stimuli in the light of past auditory experience. At Deshon each patient for whom a hearing aid is purchased is given a course of instruction in the use and care of his instrument. This is part of the function of the department of auricular training which is designed to orient the patient in his new sound environment. The instruction may continue for only a few days or for many weeks depending on the degee of hearing loss and the patient's adaptation to his impairment.

Lip Reading

Each patient is required to attend one individual lip reading class and one group practice class each day. Additional lessons are given in special cases. At the end of approximately two months the average student has acquired sufficient proficiency in lip reading to accept ordinary conversational situations.

Speech Correction

Each patient who shows evidence of speech or voice deterioration is given corrective individual and group instruction during the twelve-week period that he is hospitalized. A presentation of the work being done in remedial speech at Deshon is to be given in detail at this conference by a member of our staff.[1]

[1]See pp. 106-108, this issue.

Psychological Problems

THE psychological changes in a deafened individual constitute one of the major therapeutic problems of our entire scheme of rehabilitation. The basic solution for most of the minor aberrations that are encountered lies in the restoration by the methods presented above of the patient's ability to perceive conversation. The rigors and regulations of military service have a profound psychological effect varying from one individual to the next and combat, needless to say, is a devastating psychic experience to many men. Our policy is to treat each patient as an individual problem for solution, and we accept without reservation his psychological evaluation as a guide in approaching that solution.

New vistas are being opened at the present time for our psychologists. With more and more patients being returned to civilian life, rehabilitation cannot be considered complete until every man is subjected to a testing program whereby vocational guidance can be carried out intelligently and pre-vocational training instituted.

Each patient is required to devote half of the day to his scheduled activities in the Rehabilitation Clinic. The other half is used for supervised physical exercises, army orientation courses, special study in any one of many fields of vocational interest, and in recreation. All patients are required to perform some of the menial tasks that are necessary on any army post, so that when the time comes for their disposition, the return to duty will find them physically fit and emotionally adjusted to army routine.

Conclusion

THERE are some glaring faults in our present system of aural rehabilitation, but those who have witnessed its development during the past year are amazed at the advances that have been made. We believe that the problems of those with defective hearing in civilian life will find their solution in strategically located centers patterned along the lines established by the Army Medical Corps.

EDITORIAL NOTE

With this issue of the *Journal*, changes in type and format are introduced. The double-column format, narrower margins and more compact type make for economy, while producing, also, a more pleasing appearance and increased readability. The over-all economy is to be seen in the fact that the same amount of material is presented in considerably fewer pages.

Dr. Earl English of the School of Journalism, University of Iowa, has been of major assistance in the planning of these changes. Valuable suggestions were made by Dr. Loren Reid of the University of Missouri. The plans were passed upon by members of the editorial staff. Finally, grateful acknowledgment is due Mr. Russell L. Guin of the Interstate Printers and Publishers for his helpful cooperation in this as in all other matters involved in the publication of the *Journal*.

—The Editor.

Speech Correction In Army Aural Rehabilitation Program

Verna Allshouse*

A SPEECH correction program is of paramount importance in the rehabilitation of the deafened and hard of hearing soldier because defective speech is frequently a greater handicap than its etiology—which is impaired hearing in the majority of our cases.

The aim of the speech correction department at Deshon General Hospital is not only remedial but preventive, i.e., the correction of existing speech disorders and the prevention of speech and voice deterioration.

The case load in the speech clinic may be classified as follows: (1) those who have speech defects which are a direct result of the hearing loss, (2) those with defects which are not the result of the loss of hearing, and (3) those without speech defects at the present time, but who, because of their aural impairment, must be given preventive treatment to forestall speech deterioration.

A large portion of our cases thus far had impaired hearing prior to induction into the Army. The majority of speech defects also existed prior to military service. Therefore, we have a fairly normal sampling of speech defects.

Defective articulation and defective phonation are the two major speech disorders encountered in our clinic. Defective sibilants, blends and omitted final consonants account for a large number of articulatory problems. Sounds which are not readily visible are frequently distorted.

Predominant vocal abnormalities include defects of pitch and volume. Nasality is the most common quality deviation. Lack of flexibility, misplaced stress and improper phrasing are prevalent. Patients with impaired hearing existing prior to service often present defects of articulation and voice. War casualties frequently present defects of voice but no immediate difficulty with articulation.

A third type of disorder has been encountered, that of rhythm, embodying stuttering and rate of speech. Disorders of symbolization have been in the minority.

Approximately 35 per cent of the cases admitted to the rehabilitation service need remedial speech training. All patients receive preventive treatment to guard against speech and voice deterioration which may result from impaired hearing.

AS A PART of the routine processing of the rehabilitation service each new patient is interviewed by the speech correctionist, who, through conversation with the patient, determines the need for a comprehensive speech test. If the patient is found to have defective speech, this initial interview becomes an orientation to his particular problem and the general procedure for its correction. An examination is made of the speech mechanism to determine whether structural or manipulatory deficiencies exist. A complete case history is taken and a diagnosis is made. The patient is then placed on the schedule and treatment is

*This paper was read before the American Speech Correction Association, Chicago, Dec. 30, 1944. The work reported is part of the aural rehabilitation program for deafened soldiers in the United States Army at Deshon General Hospital, Butler, Pennsylvania.

started immediately. An individualized program of therapy is devised for each patient; consequently the instruction time per day varies with the needs of the patient and the severity of the case. Most patients receive one or two thirty-minute periods per day either in individual or group classes or both. Others report periodically for rechecking and reporting on speaking situations which have been assigned and to receive further recommendations.

The average length of treatment is approximately three months—the period of hospitalization. It is impossible during these twelve weeks to eliminate all problems. Those requiring further therapy may either be retained or may take advantage of the facilities offered by the Veterans' Administration.

Instruction includes individual and group therapy. In individual classes the patient is made aware of his particular difficulty, and taught to recognize his errors. Intensive ear training is given and finally the new speech element is established. Practice material and assigned speaking situations outside the clinic are used to strengthen this new pattern in order to make the transfer to conversation. This transition is aided by group classes which serve a two-fold purpose: to provide more lifelike situations than would be encountered in individual therapy, and to enable the patient to realize that he is not the only one with a speech handicap. Problems of mental hygiene and social adjustment are discussed because every effort is made to guard against the possibility of a warped personality as a result of a patient's feeling of inferiority or inadequacy. Each patient is an individual problem; his therapy must fit his own abilities, limitations and needs. As a result there are no set rules of procedure, but certain general techniques are used.

In treating defective articulation, we attack first an error that will readily yield to improvement and if possible one that is making the greatest difference in the patient's speech, so that he will be encouraged to continue his retraining. The problem of motivation, however, is not acute, since most of our patients are keenly aware of, or are made aware of the important part speech plays socially and economically and are grateful for this opportunity to correct their disorders. The patient is first convinced that he has errors which must be eliminated. This awareness is achieved by phonograph recordings, or direct amplification of the patient's speech, or by the clinician's imitation of the error. Next, the cause of the disorder is eliminated, if possible. Intensive ear training is then given, either directly or through a hearing aid to enable the patient to detect, to identify and to discriminate sounds. The technique used for the retraining of a sound is the stimulation method. In certain cases, when this is not feasible, the kinesthetic method is used. Finally, the transition to conversation is effected. Only one sound is practiced at a time. A new sound is begun only when the first is being used in conversation to avoid confusing the patient.

The problems of voice are among our most complex for they are expressive of the entire personality of the individual. A program of mental hygiene and general personal improvement is therefore imperative. We are primarily interested in the rehabilitation of the speech defective, rather than the correction of speech defects. Feelings of inadequacy and inferiority result in tension which manifests itself in the vocal apparatus. In addition, tension may result from the constant straining to hear. This is lessened by a hearing aid, lip reading and relaxation exercises.

Voice training is an integral part of our speech correction department. Patients who have recently acquired hearing losses do not suffer serious speech involvements immediately, with the exception of certain cases who have

difficulty with voice placement and tone control. Under the guidance of the speech correctionist the patient is usually enabled to adjust his voice to different speaking situations through the use of a hearing aid and his own sound memory. Patients who are newly hard of hearing but suffer no vocal disturbances as yet are warned that there is a possibility that their voices might deteriorate and are given such preventive treatment as is deemed necessary.

In general, the techniques for correction of voice problems follow the pattern set down for articulatory problems: (1) the patient is convinced of his vocal inadequacy, (2) the causes of the disorder are eliminated where possible, (3) intensive ear training is given, and (4) the new voice pattern is made habitual.

Of the few cases of stuttering encountered, only two appeared to be war casualties. These two were hospitalized at Deshon because they were also hard of hearing. The others stuttered prior to their entrance into the military service. Therapy very briefly includes a program of mental hygiene, removal of environmental conflicts, elimination of secondary mechanisms and a return to the speech pattern of the primary stutterer.

A PROGRAM of speech conservation is a necessary adjunct to any program of rehabilitation for the hard of hearing. Given sufficient time, a hard of hearing individual may develop certain peculiarites of speech and voice which interfere markedly with effective communication. It is therefore necessary to use preventive measures to guard against the possibility of any speech and voice deterioration. This is accomplished by making the patient aware of the manner in which deterioration is likely to occur. He is instructed to maintain constant surveillance for the appearance of any faulty speech patterns, so that they can be eliminated before they become established habits.

Kinesthetic training is used for preventive treatment. This training is frequently given with the eyes closed and hearing aids turned off so that there will be no distraction of attention from the feeling of the speech pattern. Practice material is used which focuses attention on the sibilant and final consonant sounds. Attention is also given to voice, because patterns of rhythm and melody must be maintained. We strive to guard against the flat, monotonous voice so characteristic of the hard of hearing and deaf. Pitch, quality and volume are carefully checked. The patient is taught to adjust his voice to different speaking situations by means of individual and group work as well as the performance of assigned speaking situations outside the clinic.

Results have been satisfactory thus far. Our patients are rated as showing 'marked improvement,' 'some improvement,' or 'no improvement' on a final personal interview by the clinician. Careful records are maintained on all cases and it is hoped that this service will be able to present some new and important findings on the relationship that exists between hearing loss and defective speech.

News and Announcements

Miriam D. Pauls*

IT HAS SEEMED wise to use this column of the June issue of the *Journal of Speech Disorders* to disseminate information regarding summer courses being offered by colleges and universities. It is felt that such information is not only a convenience for those contemplating summer work, but serves a greater purpose in keeping all members informed of the work being done in various institutions.

It is encouraging to note the progress that continues to be made in the speech and hearing fields even in war time. While certain colleges and universities have been handicapped by members of their staffs entering the armed services, still others have been able to expand. The growth of the hearing conservation movement is evidenced by the increased number of courses that are available on hearing problems.

The following announcements were received:

The University of Colorado will offer specialized work in speech pathology under the direction of Dr. Ernest H. Henrikson during the summer of 1945. This will include a course in speech correction, clinical work, and the regular clinic for university students. Courses in voice, pronunciation, teaching of speech, public speaking and dramatics will supplement these offerings.

Emerson College announces that both Professor and Mrs. Samuel D. Robbins are to give courses in speech therapy this summer. In addition to his regular course in Advanced Speech Therapy, Mr. Robbins will give courses in Comparison of Outstanding Therapies for Stuttering and in Post-War Rehabilitation of Veterans. Mrs. Robbins will give the Introduction to Speech Therapy course. Speech therapy students will have an opportunity, as usual, to do practice teaching under Mr. Robbins' supervision in the Habit Clinics for Child Guidance conducted by the Massachusetts Division of Mental Hygiene.

The University of Florida will conduct two summer sessions. During the first term (June 7-July 20), Correction of Speech Defects, a course in the recognition and treatment of defects of speech together with a study of their underlying pathologies, is offered. Students will observe and work with patients in the Speech and Hearing Clinic. During the second term (July 20-August 31), Training of the Hearing Handicapped will be given. This course is designed to train persons to work with the hard of hearing and the deafened. It covers anatomy, physiology and pathology of the ear, audiometry, lip reading and speech training for the hard of hearing. Students will observe and work in the Speech and Hearing Clinic. Both courses will be conducted by Dr. Lester Hall. Graduate credit can be obtained by additional reading, reports and research.

The University of Illinois will offer eight-weeks courses in Lip Reading, Speech Correction, Speech Clinical Practice, Seminar in Speech Pathol-

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ogy, Phonetics, and Voice Science. Mrs. Edna Hill-Young will conduct an intensive course in Moto-Kinesthetic Therapy from June 27 through July 13. Plans have been made to have speech clinical cases placed in foster homes.

Indiana State Teachers College is offering a full program of special education on both an undergraduate and graduate level. A Special Education Workshop will be held with the cooperation of the Indiana Society for Crippled Children from June 3 to June 23, 1945.

Mrs. Edna Hill-Young, from the University of Denver, will conduct teaching demonstrations on the motokinesthetic method of teaching speech during the entire three-week period. Guest lecturers will include Dr. John J. Lee, General Advisor, College of Education, Education of Handicapped Children, Wayne University, and Miss Winifred Hathaway, Associate Director, National Society for the Prevention of Blindness.

The announcement of the summer program of the State University of Iowa appeared in the March issue of the *Journal,* in News and Announcements.

The University of Maine is offering the following courses this coming summer: Speech Pathology, a course dealing with the various types of speech disorders such as stuttering, lisping, voice disorders, delayed speech, and articulatory defects; Clinical Practice in Speech Correction, a course in actual clinical experience in the speech clinic. Children come daily to the clinic for aid.

Both courses are under the direction of Dr. Howard L. Runion, Head of the Speech Department.

Northwestern University will present another nine-weeks symposium in hearing problems, under the direction of Dr. Harold Westlake. The topic this summer is Speech and Language Development in Children with Reduced Hearing. Lectures and demonstrations will be given by visiting faculty. A demonstration class of acoustically handicapped children ranging from 9 to 12 years of age will be in daily session for the first six weeks. During the last three weeks a group of pre-school children will be in daily session. These groups will be under the direction of Miss Florence Olsen.

Tests of mental capacity and educational achievement will be demonstrated and administered to all childen. The children who are able to use individual hearing aids will be fitted.

The lectures will cover all phases of work with the deaf and hard of hearing and will be given by Mr. Dan Cloud, Mr. Hylmar Myklebust, Captain Raymond Carhart, Dr. Paul Witty, Miss Barrett, Miss Mattocks, Miss Alice Streng, Miss Mary Numbers, Miss Mary New, Mrs. Thoenes and Miss Jean Utley.

The usual courses in speech and hearing re-education on both a graduate and undergraduate level are also available.

The University of Oregon announces that Dr. Claude E. Kantner will teach three courses in speech correction in the Portland Summer Session held each year under the auspices of the Oregon State System of Higher Education. The courses to be offered are: Speech Correction for the Classroom Teacher, Speech Pathology, and Clinical Practice in Speech Correction. A speech clinic will be held in connection with these courses under the sponsorship of the Department of Special Education of the Portland Public Schools. Mrs. Ethel Bridgeford, Special Speech Correction Teacher in the public schools, and Dr. Kantner will be in charge of the clinic.

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The Otologists' Program For Conservation of Hearing

Dean M. Lierle*

THE problems of the individual with impaired hearing are not only for the otologist, but also of concern to psychiatrists, speech pathologists, educators, psychologists, vocational rehabilitation workers and other interested lay groups. Up to the present time, most of the advancement in the conservation of hearing has been the result of individual effort. Fortunately, professional and lay groups are beginning to realize that much more can be accomplished by the coordinated effort of those who are concerned with the problems of the hard of hearing. It is most important, therefore, that all of these groups work together so that individuals with impaired hearing receive the benefit of a complete therapeutic program.

The Committee on the Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology has undertaken a nation-wide program for the scientific study of impaired hearing, including preventive measures, treatment and the rehabilitation of those so handicapped.

At the present time, the committee's principal objectives are:

1. To establish state programs for the testing of school children, with emphasis on follow-up treatment and educational rehabilitation for those with marked hearing losses.
2. To develop hearing clinics which would provide complete otological examinations for all individuals with impaired hearing, including war veterans seeking private care; here, also, special emphasis would be placed on rehabilitation measures.

The otologist believes that every person with a hearing impairment is entitled to a complete examination. This, he contends, does not end with medical and surgical examination and treatment, but should include also such services as the fitting of hearing aids, lip reading, auricular training, speech correction, psychiatric consultation when necessary, and advice regarding vocational rehabilitation.

State and local committees are now actively engaged in establishing such clinics in many states, and also are interested in promoting the passage of legislation providing for testing and follow-up programs for school children. These committees are appreciative of the helpful cooperation given them by the American Society for the Hard of Hearing and similar agencies active in this field.

The Academy Committee has prepared and published two manuals, one *Outlining the Program for Rehabilitation of Aural Casualties, Both Military and Civilian,* and the other, *A Syllabus of Audiometric Procedures in the Administration of a Program for the Conservation of Hearing of School Children.* A technicolor motion picture with sound, *The Right to Hear* is available to any group interested in the program.[1] For a number of years, the committee also has carried on a

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[1]This film was produced in the Department of Visual Education, State University of Iowa, Iowa City, Iowa, and may be rented from this department.

separate scientific program and an educational program through the instructional section of the Academy.

Soon after the outbreak of World War II, the Committee on the Conservation of Hearing embarked upon a program to aid veterans with hearing impairments. Such individuals, of course, receive adequate care during their military service and after discharge, but the committee realizes that many will need help after returning to civilian life and some will seek private aid.

There are very few centers at the present time where a complete otological examination may be obtained. The medical and surgical treatment for hard of hearing individuals is readily available. However, consulting services including the fitting of hearing aids, auricular training, speech correction, rehabilitation and psychiatric consultations are not available to many private practitioners. This may be remedied, in our opinion, first by the establishment of a sufficient number of hearing clinics with these complete services in each state and, second, the training of lay assisants for otologists.

It is recognized that the otologist may not have the time or training to do audiometric tests, fit hearing aids and see that his patients have the necessary referral consultations. As a consequence many individuals are fitted with hearing aids without a previous physical and otological examination and many with impaired hearing do not receive much needed consultations in speech, psychiatry, psychology and vocational training.

THE following is a brief outline of a proposed course of training for technical assistants to otologists. (During the summer of 1944, the State University of Iowa experimentally offered a short course for such technicians. The course is being repeated in the summer of 1945.) A proposed four weeks curriculum, organized by Carhart, Westlake, Reger and Lierle, includes the following aspects:

I. Adequate theoretical and practical training in public school audiometry and clinical functional hearing tests
II. Adequate theoretical and practical training in the fitting of hearing aids
III. Ample background orientation in the following related subjects:
  A. Audition
  B. Elementary acoustics
  C. Characteristics of impaired hearing
  D. Frequency-energy characteristics of speech sounds
  E. Anatomy, physiology and pathology of the ear, nose and throat
  F. General understanding of medical diagnosis and treatment of diseases of the ear
  G. Psychology of the deaf and hard of hearing
  H. Principles and techniques of lip-reading
  I. Principles and techniques of auricular training
  J. Special consideration in rehabilitation of the acoustically handicapped child
  K. Special consideration in rehabilitation of the acoustically handicapped adult

THE course is designed to occupy the student's full time for four weeks—forty-four hours per week. The complete schedule devotes eighty hours to lectures and ninety-two hours to laboratory activities, demonstrations and observations. It is assumed that the universities and colleges in conjunction with the otolaryngological services will have the proper laboratory equipment and facilities, including one or more sound-proof rooms, group and individual audiometers and a number of Council approved hearing aids. It is desirable that these courses be standardized and have the approval of the Council on Medical Education of the A. M. A.

The several series of lectures, with accompanying demonstrations and laboratory activities, progress concurrently. The order in which the work is scheduled is designed to present a coherently expanding development of the subject-matter comprising the course.

Before presentation of the daily schedule, the general divisions of the

course with the time allotted to each is summarized as follows:

LECTURES AND DEMONSTRATIONS

1. Elementary acoustics
   4 lectures, with accompanying demonstrations
2. Backgrounds in anatomy, physiology, pathology, diagnosis and treatment
   15 lectures and 5 laboratory demonstrations
3. Psychophysics of audition
   3 lectures
4. Audiometry (public school and clinical, including forks)
   16 lectures, with pertinent demonstrations
5. Hearing aids
   12 lectures and at least 4 complete fitting demonstrations
6. Psychology of the acoustically handicapped
   7 lectures
7. Lip-reading
   9 lectures, with necessary demonstrations
8. Auricular training
   4 lectures and 2 demonstrations
9. Rehabilitation of the acoustically handicapped child and adult
   6 lectures

LABORATORY EXERCISES

1. Participation in at least 2 group hearing tests, followed by the discrete frequency screening and threshold acuity tests
2. Twenty air conduction acuity tests—forks, whispered and spoken voice, and audiometer
3. Ten bone conduction tests—forks and audiometer
4. Five loudness balance tests
5. Two malingering tests
6. Ten speech reception (perception) tests
7. Three hearing aid fittings

In addition to the above, daily opportunity will be provided for observation of instruction in lip-reading, auricular training and speech education. Each student will be required to observe, in addition to the class demonstrations, at least:

1. Eight lip-reading lessons
2. Four auricular training lessons
3. Three speech and language lessons

It should be noted that the orientation lectures are not intended to prepare the student to teach lip-reading and speech correction. This work will be done in the rehabilitation clinics by thoroughly trained and competent persons. The present intensive course is intended primarily to give basic training to audiometer and hearing aid technicians.

A detailed weekly schedule for the course is suggested:

FIRST WEEK

Monday

Registration
Lectures:
1. General Introduction
2. The Nature of Sound

Demonstration: Sound Phenomena

Tuesday

Lectures:
1. Anatomy of the Ear
2. History of Hearing Tests
3. Basic Features of the Pure Tone Audiometer
4. Recording Hearing Loss—The Audiogram

Laboratory Periods:
1. Anatomy of the Ear
2. Familiarization with Pure Tone Audiometers

Wednesday

Lectures:
1. Anatomy of the Ear
2. Construction and Performance of Pure Tone Audiometers (2 hours)
3. Decibels and Sensation Units

Laboratory: Anatomy of the Ear

Thursday

Lectures:
1. Anatomy of the Ear
2. Currently Accepted Audiometers
3. The Technique of Air Conduction Testing
4. Physical Characteristics of Environmental Sound

Laboratory Periods:
1. Anatomy of the Ear
2. Air Condition Testing

Friday

Lectures:
1. Physiology of Hearing
2. Percentage of Hearing Loss and Related Concepts
3. Special Considerations in Air Conduction Testing
4. Physical Characteristics of Environmental Sound

Intensive practice testing begins at this point in the course

Saturday

Lectures:
1. Physiology of Hearing (Neurological Ramifications)
2. The Technique of Bone Conduction Testing

SECOND WEEK

Monday

Lectures:
1. Types of Hearing Loss
2. Psychophysics of Hearing—The Pitch Function
3. Special Considerations in Bone Conduction Testing
4. Psychology of the Handicapped

Laboratory Period: Bone Conduction Technique

Tuesday

Lectures:
1. Functional Tests of Hearing
2. Psychophysics of Hearing—The Loudness Function
3. Calibration and Maintainance of Pure Tone Audiometers
4. Psychology of the Handicapped

Demonstration Laboratory: Functional Tests

Wednesday

Lectures:
1. Use of the Audiometer in Medical Diagnosis
2. Psychophysics of Hearing—Complex Phenomena
3. Masking, Room Conditions and Related Considerations in Audiometry
4. Psychology of the Handicapped

Laboratory: Masking and Room Conditions

Thursday

Lectures:
1. Diseases of the Ear
2. Introduction to Lip Reading
3. The Upper Limit of Hearing—Its Determination and Significance
4. Psychology of the Aurally Handicapped

Friday

Lectures:
1. Diseases of the Ear
2. Systems of Lip Reading
3. Determination of Alternate Binaural Loudness and Other Special Tests
4. Psychology of the Aurally Handicapped

Laboratory Demonstration: Alternate Binaural Loudness and Other Special Tests

Saturday

Lectures:
1. Diseases of the Ear
2. Systems of Lip Reading

Demonstration: Lip Reading

THIRD WEEK

Monday

Lectures:
1. Diseases of the Ear
2. Systems of Lip Reading
3. The Group Audiometer
4. Psychology of the Aurally Handicapped

Demonstration:
1. Group Audiometry
2. Medical Cases

Tuesday

Lectures:
1. Diseases of the Ear
2. Techniques of Lip Reading
3. Pure Tone Screening
4. Vocational Rehabilitation of the Aurally Handicapped Adult

Laboratory: Pure Tone Screening

Wednesday

Lectures:
1. Diseases of the Ear
2. Techniques of Lip Reading
3. Fundamentals of the Vacuum Tube Hearing Aid
4. Rationale for Auricular Training

Friday

Lectures:
1. Special Techniques in Teaching Lip Reading
2. Features of Modern Hearing Aids
3. Principles in Selecting a Hearing Aid
4. Auricular Training for the Adult

Demonstration: Auricular Training

Saturday

Lectures:
1. Methodologies for Selecting a Hearing Aid (special lecturer)
2. Final Considerations in Lip Reading

Demonstration: Hearing Aid Selection (special lecturer)

FOURTH WEEK

Monday

Lectures:
1. Methodologies for Selecting a Hearing Aid (second special lecturer)
2. Speech Perception Tests
3. Special Needs of Aurally Handicapped Children
4. Education of the Aurally Handicapped Child

Demonstration: Hearing Aid Selection (special lecturer)

Tuesday

Lectures:
1. Methodologies for Selecting a Hearing Aid (third special lecturer)
2. Speech Training for Aurally Handicapped Children
3. Auricular Training for Children
4. Hearing Conservation Programs

Demonstrations:
1. Hearing Aid Selection (special lecturer)
2. Auricular Training

Wednesday
Lectures:
1. Further Consideration in Hearing Aid Evaluation (two lectures)
2. Speech Training for the Aurally Handicapped Adult
3. Maintainance and Service of Hearing Aids

Thursday
Lectures:
1. Maintainance and Service of Hearing Aids
2. Final Consideration in Selection of a Hearing Aid
3. Final Considerations in Rehabilitation of the Aurally Handicapped
4. Summary Lecture — Integration of Medical and Non-Medical Aspects

Friday
Whole day devoted to testing practice, observations and individual practical examinations

Saturday
Final Written Examination

IN CONCLUSION, the otologist is vitally interested in the following progam:

1. Organization of local and state committees on conservation of hearing;

2. Establishment of complete otological clinics which include consultation service in speech, psychiatry and rehabilitation;

3. Legislation for testing of school children with special emphasis on remedial care and follow-up treatment;

4. Legislation to provide special instruction and equipment for the hard of hearing;

5. Educational programs for physicians and the layman;

6. Standardization of a quantitative method of fitting hearing aids;

7. Organization of short, intensive courses in universities and colleges for the training of technicians in clinical and public school audiometry, and the fitting of hearing aids, with orientation in related subjects;

8. More comprehensive training in the problems of the acoustically handicapped in medical schools and residencies in otolaryngology.

TREATING THE SPEAKER

Speech correction is but one small area in the field of clinical psychology, and the speech correctionist who thinks that he deals with lisping rather than lispers, and with stuttering rather than stutterers, will find discouragement at every turn. It is true that many of our therapeutic techniques are focused directly upon the symptoms and etiology. It is also true that the principles of retraining children who substitute *t* for *k* are stated in rather general terms which may be applied to the majority of such cases. Yet the mere fact that he who guarantees a 'cure' in speech correction is immediately labelled as a 'quack' would seem to indicate that there is more to the problem than an application of corrective rules. The successful speech correctionist soon learns to study his students, to fit his therapy to their needs, ablities, and limitations, and to help them solve the personality and behavior problems that tend to interfere. After all, no speech correctionist ever eradicates a speech defect. The speech defective himself must do it. If he succeeds, it will be because his positive assets outweigh his liabilities. It is the task of the speech correctionist to develop and use the personality assets and to decrease or prevent the liabilities of personality from interfering with speech reeducation.

CHARLES VAN RIPER, *Speech Correction Principles and Methods* (Prentice-Hall, 1939)

News and Announcements

(Continued from Page 110)

Pennsylvania State College will offer the following courses for the summer session, beginning July 2 to August 10: Problems of the Child with a Hearing Loss—this course includes a brief and elementary consideration of the science of sound and the anatomy and physiology of the ear. Each student is expected to become proficient in using individual and group techniques for measuring the degree of hearing loss and in the interpretation of such measurements. Also discussed are the psychological problems, educational adjustment, language development and vocational problems of the deaf and hard of hearing. The course will be taught by Margaret C. Raabe, Supervisor of the Speech and Hearing Clinic, and will be open to elementary school teachers as well as those people seeking speech correction certification. Speech Correction—this course includes demonstration and practice in clinical speech procedures in the examination, diagnosis and treatment of speech disorders. Opportunities will be given for practice in working with actual cases—both children and adults—a limited number of which will be available to provide experience in dealing with all types of speech disorders. An advanced Speech Correction course will be offered.

Syracuse University will offer Speech Re-Education and Hygiene, which is the beginning course in speech correction, and Advanced Speech Re-Education. A demonstration clinic, which will enroll approximately fifty pupils of public school age, will be maintained. Clinical observation will be available to the beginning class, and practice for the advanced group. These courses are under the direction of Dr. H. J. Heltman.

San Francisco State College is offering two courses as part of the official state program to train teachers and nurses in the operation of audiometers and in the management of complete programs in hearing conservation. Problems of the Hard of Hearing and Audiometry will include anatomy of the ear, relationship of speech and hearing, theory and practice of phonograph and pure tone audiometer testing, problems of the hard of hearing child with relation to personality, schoolroom adjustments, hearing aids, complete program of hearing conservation. Lectures will be given by Dr. Warren H. Gardner, Hearing Conservation Specialist, California State Department of Public Health; Miss Corrine Howe, Consultant in Education of the Hard of Hearing Child, California State Department of Education; and others.

In Lip Reading and Speech Correction of the Hard of Hearing, Miss Vivian Lyndelle, Director of Hearing Conservation, Alameda, California, Public Schools, will give the theory, conduct a demonstration class, and supervise practice teaching.

Western Michigan College will offer three courses in speech correction this summer, to be given by Dr. Charles Van Riper. They are: Introduction to Speech Correction, a course designed to acquaint the student with the scope, history and nature of speech correction; Applied Speech Correction, which involves training in the remedial treatment of speech defectives in the college and travelling clinics; Stuttering and Allied Disorders, which is designed to provide the student with an understanding of the nature, causes, development and treatment of the more serious speech disorders.

(Continued on Page 136)

Illinois Program for Speech and Hearing

Jayne Shover*

THE agency in any state that is responsible for the medical care and rehabilitation of crippled children is one that interests all people. In Illinois that agency is the Division of Services for Crippled Children which operates as an independent unit under the University of Illinois. That division cooperates with all agencies and organizations in the state which provide health, medical, nursing, welfare, educational and vocational services for handicapped children. It maintains a registry of more than thirty thousand handicapped children including the following types of conditions which are accepted for care: orthopedic, neurological, eye, ear, and plastic surgical, and speech and hearing defects associated with cleft palate, cleft lip, cerebral palsy, aphasia, laryngectomy, and selected cases of poliomyelitis.

The division service reaches into every county and community through a field staff of orthopedic and public health nurses which operates from a central office and eight district offices and through field clinics. During the past year the division has conducted 123 such clinics to which have come all types of handicapped children. The professional staff participating in these clinics consists of an orthopedist, a pediatrician, a speech and hearing consultant, brace technician, orthopedic field nurses and medical social workers.

For the past several years this division has had a philosophy of complete care for all handicapped children in need. Steps have been taken to bring about a fulfillment of that philosophy in terms of actual services available. These steps have been substantially successful.

One of the most important modifications in the division's program was that which made speech diagnosis and rehabilitation available and which led logically to the initiation of services for hearing patients.

Early in 1943 a careful review of the records revealed that one thousand cleft palate, cleft lip cases were on the registry, for whom surgery was, in 90 per cent of the cases, only a partial rehabilitation, and for whom speech therapy was necessary to complete treatment. It was also discovered that 50 per cent of the three thousand cerebral palsy children known to the division were in need of speech therapy. In September, 1943, the division added speech rehabilitation to its program in order to meet these needs.

Speech Service Planning

IN ILLINOIS at the time of the initiation of this service there was only a meagre number of private and hospital speech therapists, and no public schools were maintaining state approved and supported speech correction programs. Some public school systems in the largest cities had speech correction facilities, but for the state at large there was practically nothing in the way of facilities in local com-

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munities. The state was, however, comparatively rich in universities and colleges with recognized speech correction staffs and facilities. These specialists were called upon for advice and guidance, and a number of them were appointed members of a Speech Advisory Committee to the division. This committee has advised and aided us in the development of our speech program. The chairman of the Speech Advisory Committee is also a member of the general Medical and Professional Advisory Committee to the division. This general committee is composed of specialists from all pertinent fields of interest, i.e., orthopedics, pediatrics, otology, ophthalmology, plastic surgery, public health, nursing, medical social service, hospital administration, etc.

The Speech Advisory Committee has recommended the following standards for speech correctionists to be employed by the division:

1. The master's degree or its equivalent in speech correction; and
2. Four years of clinical experience in an acceptable working situation which has been obtained after the bachelor's degree or its equivalent; and
3. Possession of a professional reputation in complete accord with the ethics of the profession.

Moreover, speech correction services are to be provided under the division's service, to be rendered in an acceptable working situation which affords adequate facilities for diagnosis and treatment. The committee further agreed that in certain instances individuals with substantial training in speech correction, who failed to meet by a small margin the aforementioned requirements, might be given temporary certification on an individual basis for therapy under direction.

Fees for treatment and service given on division cases were to be in accord with the prevailing rates in its fee schedule for other specialist services and dependent upon the type of cases. For non-ambulatory cases additional remuneration was allowed.

Special emphasis was placed on cleft palate, cleft lip cases, encouraging them to attend regular division clinics for speech consultation and appraisal of further needs. Plastic surgeons, who had been advocating speech therapy for post-operative cleft palate, cleft lip cases, were given opportunity to place their recommendation on hospital discharge forms and to advise parents to proceed with such care.

It was recognized that these children are individuals and that they present a variety of problems. Some of them had become behavior problems and were maladjusted because of their speech deviation; others had unrecognized hearing losses; some were alert and vivacious, while others were slow and retiring. Realizing that the planning of effective therapy for them required complete case study, which neither time nor personnel permitted at our regular clinics, the Speech Advisory Committee approved our plan to develop special speech diagnostic and treatment centers and recommended its adoption.

Diagnostic Clinics

ARRANGEMENTS were made with colleges and universities having speech correction staffs to place their facilities and personnel at our disposal. Some diagnostic centers preferred to set aside a day every two or three months; others preferred to schedule the children on an individual basis throughout the year. The plan followed depends upon the college or center.

The division's orthopedic field nurse working with the speech supervisor makes all plans for the local clinics, including the selection of cases, the issuing of invitations, and the preparaton of case history data. Cases are carefully selected from the registry and from those seen at the regular outpatient clinics of the division. No child under three years of age is selected for these special diagnostic speech clinics. Such children are seen

in the regular division clinics, where their basic nutritional needs, as well as their speech needs, are determined by the pediatrician and the speech and hearing consultant. The transportation of the children is usually arranged by a cooperating health or welfare agency and parents and teachers are encouraged to accompany their children to the clinic so that they may have a better understanding of the problems. The local division field nurse and the speech consultant are present at each diagnostic clinic to give additional information on cases, to interview the parents, to review the findings and recommendations and to take the necessary follow-up action.

The individual speech examination as recommended by the advisory committee and the Supervisor of Speech Rehabilitation includes an appraisal of the structure and function of the oral cavity, an articulation test and voice profile, as well as audiometric and psychometric tests.

Referrals may be made to plastic surgeons, otologists, orthodontists. prosthodontists, and in cases of cerebral palsy, to orthopedists and neurologists, or such other specialists as may be indicated. Whenever possible, follow-up plans for speech therapy are arranged at the clinic. Those for whom the college or university diagnostic center is available are scheduled to return for therapy; others are referred to the treatment center most convenient to their homes.

Speech Treatment Centers

IT WAS recognized that for a large number of our children the fourteen diagnostic centers already established would be inaccessible due to distance, time and transportation difficulties. Providing speech therapy for these children presented a challenging problem, especially during the wartime period. Foster home placement near the available centers was thought of, and the budget provided funds for this purpose. Conference with the State Division of Child Welfare, the official foster home planning agency in the state, emphasized the fact that foster homes were at a premium. It was accordingly decided to open additional treatment centers in those areas where children were available and in need, and wherever trained personnel could be found for such centers. This plan enabled us to keep the child in his home community, and at the same time decreased the cost of speech rehabilitation. An additional important value of this plan was that it enriched a substantial number of communities by the addition of a qualified speech correctionist, as all the correctionists added had time to serve patients in the community over and above those whom they were serving under the program of the crippled children's service.

The division maintains a file of medical and related specialists. All persons who might conceivably be interested in doing speech correction work were sought out and asked to file their qualifications with the division for review and approval by the Speech Advisory Committee. Letters were also written to directors of speech clinics asking for information relative to potential candidates. Nurses made inquiries in schools and at health meetings concerning trained speech correctionists. Some were found teaching other subjects because the public schools in Illinois offered little opportunity for speech corerctionists. Superintendents were, however, proud to tell of teachers, past or present, who they thought had the necessary training and who might be interested in doing part time work. An agency of the Federal government, learning of our need for speech therapists for crippled children, released a qualified person from its employment so that she could use her skills to greater social advantage. She had the master's degree and five years of experience in speech correction, but was employed by the agency as an interpreter. Private ther-

apists, even though few in number, were willing to devote a certain amount of time to division cases. At the end of a six-months period, 46 qualified therapists had been recruited to participate in the speech program at 32 centers, giving intensive instruction to 305 crippled children.

So delighted were local communities to have speech service available that county and city health departments, school officials, as well as service and fraternal organizations, offered physical facilities and attractive quarters for the newly created treatment centers.

Consistent with our division's philosophy of complete care, the total needs of every child are considered. If the diagnostic tests show a hearing loss which cannot be corrected by treatment, arrangements are made for lip reading instructions to be given in addition to speech therapy.

For the first six months the enrollment at the centers was made up predominantly of cleft lip and palate cases. However, we are gradually arranging for more cerebral palsied children, for we realize speech correction is a vital part of their rehabilitation progam.

Public School Diagnostic Speech and Hearing Service

IN SEPTEMBER, 1943, there were no state approved state aid speech correction programs in the state. Some of the larger cities had limited speech correction services but they reached only a very small percentage of the children in need. The division was not in a position to serve the non-crippled speech defective, yet the great need of those children was recognized and the division sought to develop its program in a way that would insure help to them. At that time the Illinois Commission for Handicapped Children (under the same director as the Division of Services for Crippled Children), in cooperation with interested speech correctionists, was able to secure an amendment to the state law which provides aid to local school districts for special educational services for crippled children, which provided for *all* physically handicapped children, and the speech defective child was included within this definition. This far reaching action provided fertile ground for the growth of local public school progams on the basis of the successful demonstrations of the division's centers and clinics.

As a result of the division's fast growing program of speech rehabilitation and hearing consultation for crippled children, and the new provision of state aid to local schools, interest and enthusiasm have developed throughout the state. We are accordingly being besieged with requests for clinical demonstrations and surveys far exceeding the capacity of our staff and our consultants combined. The Commission for Handicapped Children has accordingly recommended that qualified personnel in speech and hearing be added to the staff of the State Superintendent of Public Instruction to give help and guidance service to local school boards in establishing speech and hearing programs.

During the past year 2,420 children have been given courtesy diagnostic speech and hearing examinations. This represents only a small number of those in need of such service. Many of these children were also given orthopedic and pediatric examinations.

Following a conference with the director of the division and the director of the education of exceptional children of the Department of Public Instruction, it was decided that our division would conduct speech and hearing clinics in public schools on receipt of proper request. This is a splendid example of effective interdepartmental cooperation. Underlying objectives prompting this decision were threefold:

1. To give aid to the local school administrators in determining their needs for a speech and hearing program, at

the same time effectively increasing our own case-finding activities.

2. To give stimulation and guidance in the initiation of local programs. We recognized that permanent public school programs would insure special education in speech and hearing for all handicapped children including the crippled child.
3. To facilitate the work of the division in certifying to the superintendent of public instruction the medical eligibility of speech defective children. Our division is charged by law with the responsibility of certifying all physically handicapped children for whom a special education reimbursement is claimed.

The planning for these public school demonstration clinics followed the same general procedure as other division clinics with all local arrangements being made by the division field nurse in the respective area. The clinic specialist staff is arranged for by the speech supervisor with the assistance of the speech and hearing field consultant. We were happy to accept the offer of a number of our college and university speech departments to provide staff members and graduate students to assist with the clinics whenever possible. In making a request for such assistance preference is given to those universities and colleges within the area in which the clinic is to be conducted. These clinics, according to the directors of college and university speech departments, provide a valuable teaching experience. The same type of examination as is administered at our regular speech clinics is given, with the exception of psychological testing, which is arranged for at a later date through itinerant clinics of the Illinois Institute for Juvenile Research, or through university or private psychological clinics. Children found to be in need of medical treatment are referred to the appropriate agencies and services, thus materially furthering school health work.

In 1943-44 we conducted twenty-five public school speech and hearing clinics. The tentative schedule for 1945 provides for twenty-eight which have already been approved for service.

The progress resulting from these clinics is evident in view of the fact that twenty-one public school speech correction programs were initiated in 1944 in communities where none had previously been in operation.

Hearing Service

HEARING service has, with a few exceptions, kept pace with the speech correction program. From the beginning it was evident to those concerned with handicapped children's needs that hearing must be given serious consideration and provisions made for medical care and rehabilitation. Among the post-operative cleft palate, cleft lip and cerebral palsy cases the number discovered to have hearing losses was disturbing. While it is true that the majority of these losses were of the conduction type and in most cases subject to some improvement, some of them proved to be of a progressive perception type having an unfavorable prognosis. In addition to cleft palate cases, many cerebral palsied children, especially those of the athetoid type, showed marked hearing impairments.

The hearing progam has the following objectives: (1) case finding, (2) medical treatment, (3) educational follow-up, (4) vocational guidance training and ultimate placement, and (5) social adjustment. Our greatest source of cases has been the Illinois Department of Public Health, which, during the past year, purchased twenty-six group audiometers for use by local public health and school nurses in conducting screening tests for detection of hearing losses. Children found by them to have impairments are invited to attend a division clinic for further study. Every hearing case attending a division clinic is given carefully administered audiometer tests, including bone and air conduction, to detect the type and degree of loss. Our hearing testing procedures are supplement-

ed by pediatric appraisals. Together the hearing consultant and the pediatrician evaluate the findings and make recommendations for otological examination and treatment. The family and their physician bear the responsibility of selecting a qualified otologist. The division is happy to assist them and to send to the otologist a report giving the clinical findings and recommendations. Special emphasis is placed on adequate medical care, and our staff nurses and medical social workers, having an appreciation and understanding of attitudes and emotions associated with hearing handicaps, exert every effort to see that medical recommendations are followed. The division's plan for hearing service permits underwriting the cost of otological examinations whenever they are part of the total treatment for crippled children under our care. They are commonly authorized in cleft lip, cleft palate, cerebral palsy cases, and in all cases where children are in need of ear surgery. Ear surgery is available to children having the following conditions: congenital and traumatic deformities, simple and radical mastoids, tumors, and in some instances, otosclorosis. Hospitalization is arranged under the care of a certified otologist.

The division was given added recognition for its work in hearing when the State Commission for Handicapped Children decided that the selection of hearing aids for children in Illinois should not be left to unadvised individuals but should be placed in the hands of an agency having established relations with medical specialists and a trained personnel, i.e., the Division of Services for Crippled Children.

For all physically handicapped children removal of the handicap and restoration of the function is always the prime objective, and we are well aware that many children, had they received proper medical treatment, would not now be in the realm of the handicapped.

The Illinois program is a step in the direction of realizing a greater fulfillment of medical referral and treatment services so often sadly neglected and constituting a most difficult problem in any hearing conservation program.

There are many acoustically handicapped children for whom the prognosis is not favorable and for whom no medical treatment will improve or restore function. For these children special education, according to their individual needs, must be available, and the Illinois program is seeking to make it so throughout the state. Certification of eligibility for this special education is given on an individual basis by the Division of Services for Crippled Children in accordance with the requirements set forth by the Conservation of Hearing Committee of the American Academy of Otolaryngology. At this time there are fourteen public school districts outside of metropolitan Chicago with full-time hearing programs. This of course does not adequately meet our needs for special education for hearing handicapped children, but it does represent material progress. In cooperation with school officials and other interested persons, the division is working to further enlighten local communities concerning the need for more facilities for the special education of acoustically handicapped children. Our demonstration clinics are a prime factor in this process.

The director and staff members of the Division of Services for Crippled Children are giving freely of their time in setting up programs and standards, and in formulating plans whereby this division service may be available to all rehabilitation agencies, public and private, state and local, to the end that every child who is physically handicapped may be helped to realize to a reasonable degree his potentialities for successful living and for accepting responsibility in a democratic society.

Expanding State Speech Correction Services

Charlotte G. Wells*

IF WE are in need of a text for this discussion, let us choose Articles XIII and XIX of *The Children's Charter:*

> For every child who is handicapped, such measures as will early discover and diagnose his handicap, provide care and treatment, and so train him that he may become an asset to society rather than a liability.

and

> To make everywhere available these minimum protections of the health and welfare of children, there should be a district, county, or community organization for health, education, and welfare, coordinating with a state-wide program which will be responsive to a nationwide service of general information, statistics, and scientific research.

The state is the middle-man in speech correction services. Through state aid and from state agencies come better speech correction opportunities for the speech-handicapped child. Hence, if we are to be concerned with more speech correction and better speech therapy and more effective speech hygiene and improved speech re-education, it is to the state that we must look for assistance.

There are four questions to be answered if we are to consider the expansion of state services to speech-handicapped children. Since time does not permit our dealing with all of them, I should like today to mention only briefly the first three and to give more thorough consideration to the fourth.

The four main questions, in brief, are these: What are the present state services for speech-handicapped children? How may these services be expanded? Why should the services be extended? And in what specific ways may the states better serve the speech-handicapped children within their boundaries?

PRESENT state services vary greatly with the states. Some have set up specific agencies to deal with the problems of speech-handicapped; others include the speech-handicapped with the mentally and physically handicapped; still others consider the speech-handicapped child a problem for the state board of health; others consider that he is a problem for the division of maternal and child welfare. I do not believe that bureau names and division classifications are as important as the fact that, more and more, states are coming to recognize the need for providing speech correction service. Help is being provided for state citizens of school age, and of below and above school age. Clinics, school programs, prevention programs, and adult aid plans are available in the various states of the Union, perhaps not all services in each state, perhaps none in some states; but we know that a beginning is being made. And more and more states, often through university and college agencies, are seeking ways to provide these needed services.

To be more specific, state services may include a state consultation serv-

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ice, through a state bureau or one of the state's educational institutions. This service is chiefly diagnostic, for children from rural areas and from those towns and cities that do not provide speech correction service. Some therapy is provided for those who can come to these college and university clinics, but relatively few children can obtain these services. State aid may also be provided for the maintenance of those children who need speech correction and who must be sent to communities other than their own to obtain it. Many cities are providing, with state assistance, speech correction service for the school children of the community. In some states, particularly those of the middle west, this service may reach as many as 20 or 30 per cent of the school children of the state. In others, no community service is available except through special arrangement with schools, psychologists, physicians, or private speech correctionists.

State aid for deaf and hard of hearing children need not enter our consideration here, for we shall not speak of those whose speech is defective because their hearing is defective. Rather, if we confine ourselves to a consideration of those children whose speech is defective because of structural anomalies, paralyses, and functional causes leading to articulatory difficulties, to those whose voices are inadequate or definitely pathological, to those who stutter, and to those who are aphasic, we shall find that we have provided the state with enough material to justify its expansion of service.

Although my present affiliation is with an eastern college, much of my work with state problems has been in the middle west. My suggestions for expanding state services are based on no one particular situation, but rather grow from an ideal—one which perhaps cannot be brought to reality immediately, but one which seems to me worth describing for future reference.

If we are thinking in terms of the ideal, we may pass over very quickly the means of bringing about our objectives, remembering that, some day, those problems of implementation will be of paramount importance, but mentioning them here only to keep the realities in mind and to flavor our ideal with a pinch of practicality.

HOW may state services be expanded? That was our second question. The obvious answer is: by more appropriations through legislation. But such legislation must, of necessity, be justified, and we can justify our requests to state legislatures only if we have examined the problem with a critical eye. The district, the county, the community, the state, the nationwide service—all these parts of the pyramid must be kept strong, interdependent, and constantly coordinated.

We will find that increase in state services to speech-handicapped children will depend on the justification we can make in terms of need for any one of the several plans we shall mention later. And, as we shall see later also, many of the state services we might wish to have for speech-handicapped children have already been set up for other purposes and can be turned to the service of the speech-handicapped with relatively little additional expenditure.

NEXT we may inquire why we should advocate the expansion of state services to speech-handicapped children. Some states, it is true, are taking care of their speech problems. Many of the states have been able to provide for some aid to the speech-handicapped; but many states are not able as yet to deal adequately with the needs of children with defective speech. The state of Wisconsin, for example, has done a fairly good job. Wisconsin's twenty-seven cities with speech correction service provide help for the children in those cities and, insofar as possible, for children in

nearby rural areas. But even in cities which employ speech correctionists, the number of children needing aid is often too great for the staff engaged. Wisconsin's forty-five speech correctionists reach many of Wisconsin's children, but a good program cannot stop growing just because it is off to a fair start, and partial service is not fair or efficient service for all.

If you had come with me this past summer to Vernon County in Wisconsin, you would have seen that there is certainly a need for more state service to the children of Wisconsin, and surely this is only one instance of many in many states. Vernon County is in the southwestern part of the state, in a farming area, near the Mississippi river. Its school population is about 6,000. No speech correction service has ever been provided in the county or in any of the cities or towns in the county. Last summer the Bureau for Handicapped Children was asked to provide a clinic for Vernon County, sending a state psychometrist, an audiometrist and a speech pathologist to the county to see children referred through the county nurses and the county schools.

In two days there I saw only forty-three children, but those forty-three demonstrated conclusively that there is a need for speech correction service in Vernon County. The clinic was held during the summer, at a busy time for the farm people of the area, long after the arrangements had been made for the clinic service; clearly, not all of the speech-handicapped children in the county came to the clinic. But forty-three did come, and with those forty-three children came either the mother or the father—or, in most cases, both parents—to provide information and to find out how they might better help their children in overcoming speech problems.

Of the forty-three I saw, all of whom were speech cases and none of whom had hearing difficulties to account for the speech deviations, eleven were stutterers, six had articulatory difficulties due to structural anomalies, five presented reading problems, two were imitating the foreign accents of their parents, one had an articulatory difficulty due to a partial paralysis, thirteen demonstrated functional articulatory problems, and five were found to be within wide normal limits in speech for age and grade.

That there is a need for speech correction service in Vernon County seems obvious from even this inadequate sample. Equally clear is the fact that this state service provided last summer—diagnostic aid alone—can do nothing to alleviate the conditions in Vernon County. That county has served us only as an example of the need. Many other counties in Wisconsin, and many counties in many states, need speech correction.

Wisconsin has been praised—and justly so, I believe—for its state program under the direction of the Bureau for Handicapped Children. And yet it provides speech correction for only twenty-seven cities, with a total school enrollment of 198,000 children. There are about 520,000 children in the public schools of the state and a total of 807,000 children between the ages of four and twenty in Wisconsin. There are speech correctionists in twenty of the state's seventy-one counties, doing the best they can to extend their services beyond the cities in which they work to the rural areas nearby. And the cities engaging speech correctionists are chiefly in the eastern and southern parts of the state. No, Wisconsin, well as she does, is not meeting the need, and the same is undoubtedly true of other states. State services to speech-handicapped children must be extended beyond their present scope.

Wisconsin has been our example, but the suggestions to be made for ways of expanding state services to speech-handicapped children will apply to any state, no matter what its present progam, or lack of one.

THERE are seven possible plans, each with ramifications that cannot be considered here, to be suggested at this time. In each, the contributions of the state department of education, of local school boards, of county school authorities, of city, county, and state nurses, of orthodontists, physicians, and surgeons, of classroom teachers and of parents are of utmost importance. When we can form a close working team of parent, teacher, physician, dentist, orthodontist, nurse and state agency, and focus the energies of all of these individuals and groups on the speech-handicapped child, we may find that any or all of the plans mentioned would be the solution to the problem of how to deal more effectively with those children whose speech needs special attention.

The first of the plans is usually titled the traveling clinic. It is a system that has been in operation in several states, notably Indiana, for some time. It is, generally, a plan that provides diagnostic service and relatively infrequent speech therapy. A staff of diagnosticians, clinicians and consultants travels from place to place in a state under the traveling clinic plan, seeing children referred by physicians, parents and schools, diagnosing the problems and making suggestions for therapy. Its chief value is its all-inclusiveness, and that same value is also its chief weakness. As in the case of Vernon County, we cannot find the speech-handicapped child and then leave him alone. Better not to have found him than to know he is there and to be unable to give him the help he needs.

Secondly, the itinerant speech correctionist may be able to cover some of the territory of a state, seeing many children and providing information for handling speech problems to parents and teachers. Unless there are many of these itinerant teachers, however, the work cannot be adequate, for the occasional visit cannot provide the constant long-term, or even short-term, work so many children need if they are to overcome their deviations from normal speech.

A third plan, the first of several of the more permanent type, provides for the employment, by a county, of a speech correctionist to serve all of the schools of the county. If Vernon County, Wisconsin, were to follow this plan, it would be making a start toward the solution of its problem. It is true that the county-employed teacher in Vernon County would have 150 school districts, and 6,000 pupils to deal with, and that she would find in the county only two towns large enough to have regular city school systems. Any plan including an entire county will inevitably involve a large number of students. Yet, in Eau Claire, Wisconsin, a city employing only one speech correctionist, there are as many school children as there are in all of Vernon County. And Superior, Wisconsin, has a similar school population with only one speech correctionist.

If a county plan were not feasible financially, two adjoining counties might approach a solution of their problems in dealing with speech-handicapped children by joining forces as well as boundaries and employing a speech correctionist for the two counties. The problems of the county plan would be doubled and the number of pupils ungainly, but the speech correctionist could provide direct training for many of the children and teacher-training for many of the teachers, could consult with parents and teachers, could see and diagnose cases presented, and could provide for the counties employing her far more speech correction service than fifty-one of Wisconsin's seventy-one counties are now receiving.

Perhaps another adaptation of the county plan might more nearly fit the needs of some states, particularly those smaller in area than Wisconsin. State speech correction centers—regional or district clinics—could serve

the speech-handicapped children in certain areas of the state, just as state orthopedic centers, state centers for the deaf and blind, and other state agencies are doing. Again, the diagnostic service would probably be the greatest, but teacher and parent training could be provided and the advantage of having the child come to the speech therapist instead of having the speech therapist spend her time in traveling to the child seems considerable. In this connection, a letter received within the past two weeks by Mr. Powell, of the Bureau for Handicapped Children, which he has given me permission to read, may be of value in illustration. It is from the speech therapist in one of Wisconsin's cities and says:

> . . . We shall be very happy to have you come to our city in January to discuss with us the possibility of extending our special education facilities to neighboring communities and rural areas in this County.
>
> It is interesting to note that a number of states are now carrying on programs for the physically handicapped on a county basis. There are itinerant speech clinicians and hearing therapists now at work in certain counties in Indiana. Champaign, Illinois, is now in the process of forming a plan whereby handicapped children in rural Champaign County may receive special training in the Champaign Public Schools. Personally, I am in favor of the latter plan. Covering distances between rural schools is time-consuming, and children who are defective in speech, hearing or vision are in need of daily remedial work.
>
> I am sure you will find our city and county school authorities and public health nurses most receptive and anxious to cooperate in any plan you might suggest to meet the needs of our handicapped children.

Still another method of solving the problem of extending state services to more and more speech-handicapped children might be through the use of the short-term, intensive speech training center. At the University of Michigan, in Minnesota, Iowa, and at Madison, experiments have indicated that there is great value to be derived from short-term, intensive training periods in speech for children. It may be that we will find that it is worth-while to take a small number of children from home and school for a period of six weeks or two months and provide for them, during that period, intensive work in speech correction to bring their speech within normal limits. They could then return to their own homes and schools, with improved speech that would need only occasional check-up. Such intensive work can be provided, too, during the summer. Since these speech training centers have been described in recent and forthcoming issues, and in this issue, of the *Journal of Speech Disorders*, and also in the *Quarterly Journal of Speech*, I shall not discuss them in greater detail here.

Probably the most obvious method of improving our services to speech-handicapped children is to increase the number of speech correctionists. If we were to employ more speech teachers, perhaps even different types of speech teachers, some more highly trained than others, we might be able to come nearer to reaching those children now needing speech training in our public school systems. The following paragraph in a recent pamphlet[1] suggests the point:

> In the average school population, 1,000 children in 10,000 will require speech correction. Out of these 1,000 children 250 will present problems that must be handled personally by the special teachers of speech correction; the other 750 may be handled by the classroom teachers if they have sufficient time and have the advice and help of the speech correction teachers. Of the 250 children who require the personal attention of the speech correction teacher, about 25 will require speech therapy. These 25 would constitute a full load for one teacher. The other 225 children, with problems of speech hygiene and simple re-education, would constitute the load for two teachers, or for one teacher if she has the help of the classroom teachers.

We may amplify that paragraph by suggesting that there are speech correctionists who could deal with many cases if those cases were in need of speech hygiene and simple re-education; others, providing speech therapy, could handle only a few cases if they

[1] Dept. of Pub. Instr., State of Wisconsin, *The Field of Speech Correction*. Madison, 1944.

were to deal thoroughly with the more difficult problems. Why not, then, use some speech correctionists for the simpler and more numerous cases and provide for the more difficult cases the services of a speech pathologist, who might also serve as diagnostician for an entire city or county system? Do not think that I am unaware of the problems involved here—and elsewhere—in terms of teaching load, salary, training and experience required, and division of labor. The presentation being made, remember, is in idealistic terms, with the grim spectre of practicality pushed, for the moment, to one side.

One other method of dealing with the problem of expanding state services to speech-handicapped children may be suggested at this time. It is a plan to expand state services by contracting them—that is, to make the speech correctionist serve better by serving fewer children. This plan has some of the elements of the one just described, but involves the classroom teacher more directly than do the other plans suggested. If we can educate our classroom teachers to help us, we will be far better able to help them. We, as speech correctionists, cannot provide the maximum of service if we carry too heavy a load in terms of number of cases. Perhaps we are putting ourselves in the place of the circus horse, the racer, the show-horse, and leaving to the classroom teacher the work-horse jobs. But, looking at the picture from the point of view of the administrator and of the child, we can see that the classroom teacher, in spite of the fact that she is expected to teach all things to all children, is in an excellent position to provide daily, constant, effective speech training if she knows what to do and how and when to do it.

Teacher training and teacher participation in those phases of speech correction which she can provide—and can often provide as effectively as the specialist can—will not put us all out of work, but will make it possible for us to do our specialized job more effectively, more efficiently, and with far better and more lasting results than we are now able to obtain. To expand state services to the speech-handicapped child, then, contract them and concentrate them. Give to the classroom teacher the cases with which she can deal and reserve for the specialist the cases requiring specialized treatment. Present, in teacher-training courses in normal schools, colleges and universities, particularly for teachers on the elementary level, methods courses in speech and speech improvement and speech correction for simple articulatory cases. Teach the prospective teacher how to know a speech-handicapped child when she sees and hears one. Give her some information and techniques to use with those of her pupils whom she can help. Suggest to her the many ways in which speech training can become part of her regular school curriculum, in reading, spelling and language classes. Teach her what not to do as well as what to do. Then the speech correctionist will have some time to expand state services to those who are in special need of them, and to do the important job of coordinating the work and soliciting the contributions of the physician and the school nurse, the dentist and the orthodontist, the audiometrist, the psychiatrist, the parent and the teacher so that all these people, plus the social worker, the state worker in aid to the handicapped, the state senator, the legislator, the state department of public instruction, the state agency for the speech-handicapped may focus their attention, skills, interests and vast professional resources on the speech-handicapped child who is in need of these many state services.

'For every child who is handicapped, such measures as will early discover and diagnose his handicap, provide care and treatment, and so train him that he may become an asset to society rather than a liability' . . . so says *The Children's Charter.*

The Pennsylvania Program For Hearing and Speech

Harold Westlake*

THE PURPOSE of the Pennsylvania hearing program is to discover children who have reduced hearing acuity and to provide for them all aids which will lead to their optimum adjustments. Prevention is the most effective and economical attack on the whole hearing problem from the medical as well as from the educational point of view. Medical treatment is most frequently effective when applied in the early stages of ear pathology. Likewise, early recognition of a hearing loss, with immediate measures to teach a child in terms of his difficulty, is the surest way to prevent the later development of an educational problem. The emphasis is therefore on the selection of children with hearing impairments as early in their school careers as possible.

Legal provision for the Pennsylvania hearing program is made by several acts of the legislature. The first legislation, Section 1501 of the School Laws, makes compulsory the annual medical inspection of pupils in the public schools. Routine tests of hearing, usually some form of a whisper test, are often included as parts of these medical inspections, but precise measures of sensory functions are not possible in these set-ups. Consequently, the original act was amended by the addition of Section 1501-A of the Public School Laws, which stipulates that annual tests of the hearing acuity of public school pupils shall be made with audiometers or other scientific devices to be furnished by and approved by the Department of Public Instruction. The amendment further provides that the Department of Public Instruction set up suitable rules for the administration of these tests and that it furnish instruction in the proper use of the equipment. This legislation is supported by other sections of the School Code which make provision for appropriate special education for exceptional children.

THE PRACTICE of administering careful audiometric tests to all pupils is the only basis for an adequate program, as it is the only means by which there can be reasonable assurance that all of the pupils who have hearing impairments are being selected. Testing only those who are suspected of having hearing losses by parents or teachers is unsatisfactory since their judgments have been proved unreliable, especially in instances where the losses are relatively small. From the standpoint of prevention these cases should be emphasized in a program rather than omitted. However, even in the cases of children who have more marked impairments, teacher selection is not reliable. *In several groups where teacher and parent estimations were checked with the results of careful audiometric tests, they selected*

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only one-half of the pupils who showed significant impairments by the audiometer tests. One-half of the pupils selected by the parents and teachers showed normal hearing by the audiometer tests. The practice is, therefore, to test all pupils as early as possible after their entering school and to administer tests at regular intervals thereafter, the frequency of these tests depending upon available personnel in the school districts.

The bulk of the testing is still done by using the multiple audiometer and the digit records. This is not the most satisfactory arrangement, as that test does not select pupils who have losses affecting only the high frequencies. The plan was to change over to discrete frequency testing and an adequate appropriation to begin this change was made just before we entered the war. It was impossible in the biennium of that appropriation to purchase the equipment. Nevertheless, as audiometers became available in small numbers they were purchased by school districts, with the result that there has been an encouraging increase in the amount of testing done with discrete frequency audiometers.

Although there is little question that with the present equipment on the market the more desirable test is that made with the discrete frequency audiometer, yet the idea of having a device with which groups of children can be tested at one time is an attractive one, especially when it is necessary to test total school enrollments. Probably most of the obvious weaknesses in group testing at the present time only demonstrate the flaws in particular equipment and the improper use of it. It is hard to believe that they are inherent in group testing itself. Representatives of two of the largest manufacturers of these audiometers claim that high frequency receivers, recordings, and phonograph pick-ups can be produced in bulk about as cheaply as the inferior parts we now use. Why then is it not possible to have a superior group speech test and a satisfactory group tone test? Giving as much care to the planning and validation of these tests as has been given to the construction of tests in other areas should result in a means of administering accurate measures of hearing acuity to large groups of children at one time.

With any type of test, exact procedure in its administration is as important to obtaining reliable results as is the excellence of the equipment. A bulletin, *Meeting the Needs of the Acoustically Handicapped Child,* has been prepared for publication and will soon be distributed throughout the Commonwealth, prescribing exact technics for testing, methods for recording test results and criteria for referring children who have impaired hearing. This bulletin represents a revision of previously used manuals. While there is much to be said in favor of allowing each tester considerable freedom in working out his own procedures, experience in administering a large program in which individuals with varying amounts of experience and training operated, indicated that complete autonomy of local programs resulted in a confusion of methods of recording and criteria for referral. Many of the innovations in testing procedures were intelligent, but many others were so poorly selected that test results could not be considered valid. There is little doubt that erring a little on the side of being over-exact in the instructions has greatly improved the testing as well as the efficiency of the follow-up procedures. Reasonable variations to meet local situations are accepted, but considerable emphasis is placed on strict adherence to the procedures as written.

Some state programs have trained technicians go out to school districts to use the audiometers, and there is much to be gained in the way of uniformity, accuracy and complete coverage by this arrangement. In Pennsylvania the testing is done by individuals

who are employed in the local districts, with the idea that the essential follow-up work is more apt to be accomplished when an interested and responsible person remains in the area to complete the whole program.

Most of the testing is done by school nurses who act under the supervision of the medical examiners. In smaller districts where school nurses are not employed, satisfactory programs are organized by placing teachers in charge who are interested in the testing and who show some aptitude for using the audiometer. These teachers are controlled by the county supervisors of special education who work out of the offices of the county superintendents of schools. These supervisors are well trained clinical psychologists, and since their responsibilities extend only to the smaller districts and rural areas within their counties, they can maintain reasonably close contact with the testing.

To date no special requirements have been set up for the licensing or special certification of individuals who do the audiometric testing. Training in the use of the audiometers is included in the preparation of the school nurses. Their backgrounds are improved by organized in-service training offered by the State Director of School Nursing as well as by the State Supervisor of the Hearing Program. The County Supervisors of Special Education offer further instruction to nurses in their respective areas.

UP TO THIS POINT this paper has been written in terms of the actual testing, and little mention has been made of the follow-up work which is the critical portion of the whole program. This is probably more than anything else, indicative of the stage in the development of the program. The first step was to get enabling legislation, and then to achieve a working organization. The major effort during the past three years has been to get the testing in motion. However, considerable planning and work have been completed with respect to the follow-up.

The follow-up work is divided into the two areas of medical examination and treatment and educational adjustment. Each of these areas is of vital importance and neither can be eliminated or exclusively stressed. However, it may be said that either of these areas alone is important enough to justify a testing program if follow-up work in both areas is not immediately possible.

The initiative in planning for the medical follow-up is being assumed by the Pennsylvania State Committee for the Conservation of Hearing, which is a division of a national Committee for the Conservation of Hearing set up by the American Academy of Opthalmology and Otolaryngology. This state committee has designated five otologic clinics in Pennsylvania which are to serve as centers to which children who have impaired hearing can be sent through their family physicians. It is the intention that these clinics will function chiefly in connection with more difficult cases whose needs cannot be met in local areas.

A portion of the medical program which is still in the planning stage, but which is very important, calls for the provision of itinerant otologists who will serve areas in which there are no medical specialists. There are whole blocks of counties in the Commonwealth in which there are no otologists, or even discrete frequency audiometers other than those which are placed by the Department of Public Instruction. It is expected that itinerant otologists will be able to make rounds for diagnosis and some treatment. Such treatment as can be given by the family physicians will be administered by them at the suggestion of the itinerant otologists. Cases for the five designated clinics will be filtered through the itinerant clinics. The plan is not at all visionary. A parallel arrangement by which orthopedic sur-

geons and nurses have functioned on an itinerant basis has been in operation for some time.

While awaiting the final organization of a state-wide plan for medical follow-up on hearing cases, considerable gains have been made in utilizing already existing facilities by helping the nurses and teachers become acquainted with hospital clinics in which otologic services are already available. Although the school medical examiners are not otologists, it has been possible to call to their attention the children who were found to have hearing impairments by the audiometric tests, so that they can be given special examinations.

The provision of medical services has been left up to the parents. There can be no doubt that parental indifference and poor financial circumstances have prevented many children from getting needed attention. However, looking at the results on a state-wide basis, the work of nurses and teachers in urging medical care does accomplish a great deal.

As in most states, there is adequate provision in Pennsylvania for the education of the severely handicapped children who must attend special schools or special classes. The Commonwealth and the local school districts jointly meet all expenses involved in attending special schools for the deaf. The Commonwealth also subsidizes day schools and special classes operated in local districts. The children whose needs are not met adequately are those whose impairments are not great enough to justify special class placement, but who are, nevertheless, handicapped in the classroom, and who must be taught by the regular classroom teacher. In larger districts the adjustment of these children is supervised by public school psychologists, directors of special education, or elementary supervisors. In rural areas and smaller districts this supervision of the classroom teacher is taken over by the county supervisors of special education. The efforts of these individuals are supplemented by bulletins written for the teachers and the parents of hard of hearing pupils. Copies of such bulletins are distributed by the Department of Public Instruction for duplication by the local districts.

THE speech correction program in the Pennsylvania schools has not had the benefit of the specific legislation which the hearing program has had. Speech correction teachers are, however, included along with all other special teachers in legislation favoring special education. A school district which employs a teacher of speech correction receives preferential state aid up to three-fourths of the amount of the minimum salary for that district. In order to qualify for the additional aid the teacher must hold a state certificate for speech correction which requires twenty-four semester hours of special training in addition to a regular teaching certificate. The organization of the teacher's program must also be approved by the Division of Special Education in the Department of Public Instruction. The three staff members in this Division of Special Education and the county supervisors of special education are constantly active in urging school administrators to employ speech correction teachers.

On the whole, the situation is decidedly favorable for the further development of speech correction in Pennsylvania. The enabling legislation is good, and the attitude of the Department of Public Instruction is decidedly favorable to the work.

A State Auxiliary Program of Speech Correction

Frances M. Brown*

THE Minnesota Crippled Children's Services of the Division of Social Welfare offers a speech correction program differing from most analogous programs in other states by providing both a central clinic and itinerant speech clinic service. Public school speech correction facilities throughout the state are not profuse despite the availability of state aid to the extent of as much as $1500 a year toward the teacher's salary, which is paid by the State Department of Special Education. Although they are geographically separate, the itinerant clinic and the central clinic are planned to assist each other. The same child may be cared for at different times under each of the two phases of the program. Referrals back and forth between the itinerant and the central clinic are serving to care for the speech rehabilitation of many children to whom no other facilities for speech correction are available. Among these are the children of pre-school age, children from parochial schools, small school systems in isolated areas, and even the larger school systems with populations of up to six or eight thousand school children. There are also children whose parents cannot afford to pay for such care and children whose parents can afford to pay but have no other place to take their children for speech therapy.

The central service provides a speech clinician who spends three and one-half days a week at the University Hospitals working in cooperation with their Pediatric Psychiatric Clinic. The same speech clinician devotes two half-days a week to speech correction at the Gillette State Hospital for Crippled Children in St. Paul. Much cleft palate surgery is done at Gillette State Hospital, and post-operative speech cases at this hospital also have access to the psychiatric and pediatric facilities at the University Hospitals when speech therapy is to be continued after their hospital discharge.

BRIEFLY, the routine for all speech patients at the University Hospitals is as follows: (1) Physical examination in the pediatric outpatient department; (2) routine referrals to Ear, Nose, and Throat Clinic; and (3) psychological examinations in Pediatric Psychiatry. Types of service offered are diagnostic, treatment and consultation. Patients may be admitted on a free, part-pay, or private patient basis, dependent on their financial status.

One day each month Crippled Children's Services patients who are cleft palate cases are seen at the University Hospital Speech Clinic by the plastic surgeon and the speech clinician. The speech clinician is present when the anatomical results are examined and is thus able to interpret cleft palate conditions and surgery to the parents. This is helpful in providing for a division of labor which saves time for the plastic surgeon. Patients remain with their parents and are seen individually the rest of the day by the

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speech clinician, who prescribes and demonstrates exercises to be done at home. If a return appointment to the Speech Clinic seems indicated before the next visit to the plastic surgeon, the child is given additional appointments. Appointments for the surgeon-clinician clinics are made by the medical social worker of the Crippled Children's Services. Frequently a patient who is seen by the plastic surgeon is not considered ready for speech training; in these instances some time is devoted to general discussion with the parents concerning cleft palate conditions, etc., in an attempt to prepare and motivate the parents for the important part they must necessarily play in speech rehabilitation later. When a patient is discharged from the central clinic he is referred to the itinerant speech clinician if he happens to live in any of the twelve counties which she visits.

THE itinerant service consists of monthly field clinics which are established in county seats with the aid of the local public health nurse. One full-time speech clinician visits and works with orthopedic and plastic cases who have speech defects. They are accompanied by the interested parents or other adults who will be responsible for the speech training in the monthly interim. The itinerant clinician spends one full day each month in each of these clinic centers. Children with speech defects only, who are labeled non-orthopedic and non-plastic speech cases, may attend the itinerant clinics for examination, diagnosis and recommendations, but not for treatment. If prolonged therapy or further detailed study appears necessary before diagnosis can be made, the patients are referred to the speech clinician of the central service at the University Hospitals where they may avail themselves of the services described. It is not uncommon for such patients to spend several weeks or months in a boarding home near the university so that they may attend the speech clinic. Frequently they are also treated by the psychiatric social worker and the pediatric psychiatrist.

A THIRD phase of our program is directed to educating the allied professions to the existence and functions of our speech therapy program. The speech clinician of the central service lectures once every three months to each new group of student nurses at the Gillette State Hospital for Crippled Children. In addition, she conducts discussions with general medical practitioners who are in attendance from time to time at the Center for Continuation Study of the University when the topic of the seminar is Pediatrics. Similar discussion meetings are held with public health nurses of the state when they attend the Center for Continuation Study. The speech clinician is scheduled for a one-hour lecture-demonstration of speech cases to the junior medical students during their pediatric clerkship. The itinerant speech clinician conducts lecture-demonstration meetings with teachers and parents in each of the counties she visits. These discussions are divided over a period of several months; at one meeting the discussion may be devoted to stuttering, at another to articulatory disorders, and at still another to cleft palate speech.

Last year for the first time Crippled Children's Services sponsored an eight-weeks clinic at the University Hospital for post-operative cleft palate cases between the ages of fifteen and twenty. These patients were selected from a state-wide area, and Crippled Children's Services provided transportation and boarding care for patients unable to pay their own. Eight such children, three boys and five girls, attended the clinic last summer. It is hoped that this clinic may be enlarged and plans are being made to continue it.

The program as we view it is making two major contributions to speech

correction in Minnesota, in addition to furnishing speech rehabilitation and adjustment to the speech cases who are treated. They are as follows: (1) until radical changes are effected in the state's provisions for rural speech correction, this program offers the only speech help available to children who are located in sparsely settled districts; and (2) the entire program is serving well to educate many Minnesota medical practitioners to the existence and importance of speech re-education.

A WORD NEEDS COMPANY

Just as the physiologist isolates for purpose of study the functioning of individual organs in a body, so, too, individual words may be isolated. But the physiologist is not misled into thinking that any organ functions apart from the rest of the body. Similarly, one must not be misled into supposing that a word can function apart from the sentence or totality of discourse in which it may be used.

A word may be related to its context in the way a letter is related to the word in which it appears. In each case word and letter are but parts of a larger unit, and their characteristics are best studied only as they appear in those units. Just as it is not possible to describe the sound-or stress-value of a letter before it exists in a word, so, too, it is pointless to assume a use-value of a word distinct from its use in discourse.

IRVING J. LEE, *Language Habits in Human Affairs* (Harper, 1941)

'BASIC GESTURE'

Gesture possesses certain advantages over articulate speech. Instinctive gestures are, in the first place, international and comprehensible to all whatever their language. They can be executed more rapidly than speech. They can express shades of meaning which could only be described by a circumlocution, and a modification of the main gesture can introduce adjectivally the idea of size, shape, speed, approval or disapproval and so on. Lastly there are a few propositions which can be expressed in words only with the utmost difficulty, but which can be explained instantaneously by means of a gesture. The word 'spiral' is a striking example of a concept difficult to define but easy to demonstrate manually.

Paget has estimated that it is possible to produce, by combining various postures, movements of the upper arm, forearm, wrist and fingers, no fewer than 700,000 distinct elementary signs. In this way the human hand can be regarded as 20,000 times as versatile as the mouth. It follows that great potentialities exist for the further development of gestural speech. He has therefore experimented with the idea of forming a universal sign-language based upon the use of Ogden's basic English. The dictionary of basic words contains only 850 items; Paget considers that something like 500 to 600 signs would suffice for the New Sign Language vocabulary.

MACDONALD CRITCHLEY, *The Language of Gesture* (Longmans, Green, 1939)

News and Announcements

(Continued from Page 116)

The University of Southern California will offer official state courses on Problems of the Hard of Hearing and Audiometry and Lip Reading Theory and Practice. They are courses intended for nurses, teachers, and laboratory assistants and audiometric technicians in otologists' offices. Warren H. Gardner, Ph.D., Hearing Conservation Specialist, California State Department of Public Health; Miss Corrine Howe, Consultant in Education of the Hard of Hearing Child, California State Department of Education; Harold Barnard, M.D., and Leland House, M.D., otologists, and George Clapp, physicist, will be the lecturers.

Additional courses, Psychology of the Hard of Hearing, Adjustments, Research and Education of the Hard of Hearing, Lip Reading and Adjustment for Veterans of World War II will be given.

Western Reserve University will hold two summer sessions. During the first summer session the following courses will be given under the direction of Miss Amy Bishop, Miss Lundin, and Miss Garrison: The Teaching of Visual Hearing (Lip Reading); Advanced Visual Hearing and Audiometry; Speech Correction; Voice and Diction; Clinical Techniques in Speech and Hearing; Clinical Speech Correction; Special Problems in Speech Correction; Internship in Speech Correction and Lip Reading. During the second session, in addition to a course in American-English Speech (Phonetics), four of the speech correction courses will be repeated.

Municipal University of Wichita will offer courses in the development of language, the teaching of speech and lip reading to the deaf and hard of hearing, and other similar material during the regular summer session. Clinical courses are open to students who desire to gain experiences in clinical work.

The University of Wisconsin will present the following courses during the eight-weeks summer session: Correction of Speech Disorders, covering organic and functional disorders of speech, their causes, diagnosis and treatment; Advanced Correction of Speech Disorders, presenting methods of case study and treatment in both organic and functional disorders; Seminar in Speech Sciences; Modern Acoustic Instrumentation, which is designed to assist in the understanding of audiometer and hearing aids; Language Training of the Deaf, including: (a) the special linguistic problems inherent in deafness, (b) the theory and underlying psychology of 'signing' and of finger-spelling and their influence on the linguistic development of the deaf, (c) the teaching of reading, (d) the teaching of composition, (e) the relation between lip reading and language development.

The speech training center for cleft palate children, sponsored by the University, the Wisconsin General Hospital, and the Bureau for Handicapped Children of the State Department of Public Instruction, will hold its third session this summer.

Indiana University is offering Speech Pathology, Phonetics of American Speech, Clinical Practice, Psycho-Physics of Sound and Audiometric Testing, Principles and Methods of Teaching Lip Reading, and a Seminar in Speech Pathology during the second summer session. The Speech Clinic is open to any student who has need for any type of speech correction.

(Continued on Page 148)

Speech Training For the Child With a Cleft Palate

Dorathy Eckelmann and Patricianne Baldridge*

THE CHILD with a cleft palate faces many problems requiring special investigation and treatment.

First of all, of course, one must consider the medical aspect, which involves the matter of general health and the surgical closure of the palate. It also involves possible plastic restoration, in the event of facial disfiguration. Dental care also is imperative. The dentist's work will improve the general health of the child, and also will improve facial contour. Maximum benefit will result only if he is consulted early. The dentist must follow the development of your child's dentures from the time the first tooth appears.

The purpose of this discussion, however, is to explain many of the speech problems to be encountered by the child with a cleft palate, and to outline steps which will help him to overcome these problems. Sometimes surgical repair of the lip and mouth will restore normal speech, if the cleft is slight, and the repair is made very early in the baby's life. More frequently, the patient retains the disagreeable nasal quality of cleft palate speech even after the palate has been surgically restored. Without the repair of the lip and palate, normal speech in the full sense is impossible, but it also must be remembered that surgery will not always automatically produce normal speech.

When Should Speech Training Begin?

Most surgeons recommend speech training as soon as the palate heals, after the operation. If, for some reason, this operation is delayed, limited speech training may be attempted prior to surgery. Even before the operation the child may be taught better control of the breath, and may learn the correct placement of the tongue, teeth and lips, for the production of sounds. In the event that the operation is postponed, the method of speech training will be the same as that outlined more fully in this paper. The training will be easier after the repair has been completed. Massage of the palate and lip often may be started after the incision has begun to heal. This procedure should be under the direction of the physician, and, if done correctly, may prevent the formation of scar tissue and may aid in a more normal development of the palate, the first step toward speech training.

What Is Cleft Palate Speech?

Better results will be obtained from this program if the parents of the child with a cleft palate know how the speech deviates from the normal. Cleft palate speech is characterized by the escape of air through the nose, resulting in an unpleasant, hollow intonation, and in the weak production of those sounds which require the building up of air pressure in the mouth. Vowels are nasal, and the following sounds are likely to be distorted or replaced by other sounds: *h, p, b, t, d, s, sh, ch, f, v, th, w, k,* and *g*. Facial grimaces often accompany the child's

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speech. He may pinch or draw in his nostrils in an attempt to control the breath stream. The accompanying diagram, Figure 1, is designed to explain how these problems arise. The picture is a side view of a normal palate. When a person with a normal palate tries to prevent the escape of air through the nose, the muscles of the palate and the back and side walls of the throat all contract to help close the opening between the throat and the nose. Thus, if the palate is too short, the muscles cannot contract enough to effect closure, and the air escapes through the nose.

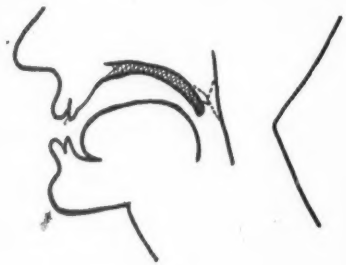

FIGURE 1. Diagram, side view, of normal palate (shaded) and related structures. Dotted lines show joint action of soft palate and throat wall in shutting off nasal passages and directing outgoing air through the mouth in the production of non-nasal sounds.

If the air escapes from the mouth through the cleft into the nostrils, the quality of the voice will be nasal, and many of the consonant sounds will be weak because of inadequate pressure in the mouth. These speech qualities persist after the repair, if steps are not taken to train the muscles of the palate and throat. Muscles of the throat will be developed by the blowing and speech exercises to be discussed later. These exercises should help effect closure of the passage into the nose during speech. However, if the nasal quality is not decreased after extensive practice over a long period, further surgery or a prosthetic appliance should be considered. Your doctor will be able to advise you about these steps.

What are the Objectives of the Speech Training Program?

In a speech training program five things must be accomplished:

1. The muscles of the soft palate must be strengthened.
2. The child must be taught to direct the breath stream through the mouth.
3. The child must be taught to increase the flexibility of the lips.
4. He must be taught to hear the difference between the correct sounds and the errors he is making.
5. He must be taught to make these correct sounds.

What Can the Parent Do?

Some of your work must be done while the baby is very small. In the first place, he should be permitted to nurse in a normal fashion, if this is at all possible. Sucking activity is important in the development of the muscles of the mouth and throat, and it contributes to the general welfare of the child. A specially constructed nipple may be found necessary, if the cleft extends through the hard and soft palates. Your physician should be able to advise you as to whether your child needs a nipple with a larger hole, a larger nipple, or a nipple with a special shield to prevent the milk from going into the nose. As the repair of the lip and palate progresses, a nipple with a smaller hole may be indicated. The child should be allowed to perform the regular chewing activities of the normal baby. He should also be encouraged to coo and babble and attempt speech, when the time comes. All of these activities are of vital importance in laying the foundation for later speech training.

What Exercises Should Be Used First?

The first group of exercises may be used after the repair of the lip, to increase the amount of movement of the lips:

1. Instruct the child to pucker his lips, pushing them forward as far as possible. He may pretend he is pouting.

2. On a count of one-two, have him open his mouth wide, and then close the lips firmly. Do this ten times or so during any one practice period.

3. Have the child pretend he is a funny little clown, first rounding his lips in the *oo* sound, then spreading them back in a wide grin, for *ee*. Exaggerate movements. Start slowly and increase the speed. Do this about ten times. Then have him try *ah, ee,* and *oo,* watching the funny faces he makes in a mirror.

4. On a count of one-two, have him raise his upper lip slowly, showing his upper teeth.

5. With teeth closed, have him say with exaggerated lip movement, *ee-oo, ee-oo,* ten times. Then have him try *wee-woo.*

6. Show the child how to puff out his cheeks. Perhaps he has seen someone blowing a tuba, whom he might imitate. Have him puff out his cheeks, release the air, then try to puff out his upper lip only.

7. On the count of one-two, have him bite first his upper lip, then his lower lip. Start the counting rather slowly and increase gradually, as the child becomes more proficient.

8. Have the child draw back first the right, then the left corner of his mouth. He will benefit by watching his reflection in a mirror. He may like to think of these grimaces as lop-sided smiles.

9. After he has mastered the above exercises, have him practice holding the position and talking out of the corners of his mouth alternately.

10. Have him pretend he is a popper of corn. As each little kernel explodes, he is to say 'Pop!' He can begin very slowly and increase the speed until he is saying, 'Pop, pop, pop, pop, pop,' in rapid succession. There should be firm closure of the lips. A small piece of paper held before the lips will add interest. If he is directing the stream of air through his mouth, the paper will move away from his mouth with each *pop.*

11. Have him imitate the popping sound that is made by a cork being pulled from a bottle, being sure he has filled his cheeks with air first.

What Exercises Should Be Used Next?

The second series includes direct blowing exercises. The following blowing exercises serve as an introduction to further speech work. The purpose in each of these is to direct the breath stream through the mouth rather than the nose. In this manner, when the time comes for teaching sounds, the child will be able to use the air as it comes through the mouth for the production of clearer sounds and to avoid an unpleasant nasal quality. If the child succeeds in any of the following exercises, he is using the soft palate, and directing the breath through the mouth:

1. Give the child a straw and a glass of water. Have him blow down the straw, making bubbles in the water. Also let him suck his milk through a straw. At first use a straw with a rather large hole. As he is able to drink or bubble through a straw, use one with a smaller opening.

2. Give him toy horns and whistles to blow, being careful that those used at first do not require too much air pressure.

3. Teach him to blow soap bubbles with a bubble pipe.

4. Get him several party favors, the kind that unroll as they are blown. These should be available at novelty counters where party favors are sold.

5. Let him blow shells or flower petals floating in a bowl of water.

6. Teach him to yawn. This is best done before a mirror so that he may watch the palate rise.

7. Show him how he can make a pinwheel turn by blowing on the blades.

8. Let him fill a balloon with air. This is one of the most difficult exercises, so the parent should first test the balloon to make sure it is not too stiff. You may even blow it up and deflate it a few times before giving it to the child. As he first attempts to fill the balloon, the child may find it necessary to pinch his nostrils. When he has inflated it, have him attempt to hold the neck of the balloon in his mouth, preventing the escape of air through his nose.

9. Place a small feather, or a ping-pong ball, on the table and show the child how to blow it. Make a game of it, designating the number of puffs he must use to get it from one side of the table to the other. As he succeeds, increase the weight of the feather or ball.

10. Let him blow out candles or matches. At first the candle may be held a few inches from his mouth. Increase the distance until it is a foot away. Place three candles in a row, six inches apart, and a foot away from the child. Have him blow out the middle one.

11. Give him a bamboo pipe or pea shooter and let him blow out rice, peas or beans.

12. Cut a piece of light paper two inches square. Place this against a vertical surface at mouth level. Hold it with your fingers against the surface, and direct the breath stream upon it. Remove your fingers, and attempt to hold the paper in place by the breath stream alone. Let the child attempt this feat. This is a very difficult exercise and

should not be attempted until the child can perform most of the foregoing exercises. When he does succeed in holding the paper in place, he should work to increase the length of time he can keep the paper in position. The time should be measured and recorded in seconds. A chart recording his daily performance will be helpful.

13. Make up games involving the blowing of paper airplanes across a map, paper boats on a lake, etc.

14. Another exercise the child may enjoy is the displacement of water from one bottle to another by blowing through a glass tube. Flasks, rubber corks and glass tubing are available in most chemistry laboratories. (See Figure 2.)

15. Crease a piece of paper. On it place light feathers or pieces of kleenex rolled into little balls. As you hold this at a slight incline under the child's nose, instruct him to blow, trying not to displace the paper or feathers. Or, bend a small filing card half an inch from the end, and bend this half-inch back once more and paste fine strands of silk thread on this edge. Hold it under the child's nose with the threads uppermost, instructing the child to blow through the mouth, along the lower surface of the card. If the air is directed through the nose, the silk will move.

16. For contrast of nasal and oral emission of air try the following: Have the child close his lips tightly, and sniff in and out through his nose. Then hold the nose between your thumb and forefinger and ask him to emit a steady stream of breath through the mouth which should be nearly closed. Test this emission with a candle flame. He should be able to bend the flame without putting it out. Then he should pinch the nose and draw breath audibly in and out through the nearly closed lips.

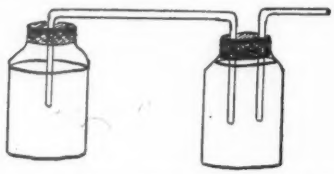

FIGURE 2. Arrangement of bottles and tubing for Exercise 14.

Is a Speech Correction Teacher Needed?

If you have followed these exercises carefully, and the child is able to perform them, you have accomplished the first three of the five speech training objectives. At this point, a trained speech correctionist should take over. The speech training of your child is actually the work of a specialist. If there is not a speech clinician in your community, it would be worthwhile to visit the nearest speech clinic. Most state universities and colleges and many hospitals support such clinics and give professional advice.

Whether or not you secure the aid of such an expert, you must remember that progress will be slow. If you do place your child's training in the hands of a speech teacher, you must realize that short lessons several times a week will be of little value unless you follow up the work at home. It would be wise, therefore, to visit the speech class, watch the correctionist at work, and request material which will assist you to carry on the child's training at home.

How Should Speech Exercises Be Given?

In helping the child with his speech, you should keep in mind that nagging will not be helpful. Your program must be positive. In administering speech drill, it will be well to remember these points:

1. The exercises should progress from those which are relatively easy for the child to those which are more difficult. He should not be allowed to become discouraged because of failure.

2. Practice periods for the child under three should rarely exceed five minutes. There should be several practice periods during the day. These can be increased in length as the child grows older. A safe rule to follow is that the child should not be allowed to become tired.

3. Preserve the spirit of fun. Make a game of the speech exercises.

4. Use one or two of the exercises over a period of time until the child has mastered them. When he begins to tire of one, take up another. To do one or two well is better than to do many half-heartedly.

5. The blowing and sucking exercises should precede any attempt at speech drills. After the direction of the breath stream is accomplished, they may be continued as part of the speech lessons, and as an approach to the learning of correct speech sounds.

What Is Ear Training and How Is It Used?

Ear training is the first step in teaching the child the formation of correct sounds. No matter how queer his speech seems to you, it sounds to him like the speech of those about him. He must be trained to hear the sounds you wish him to produce. If he is omitting a sound entirely, your work will probably be easier than if he is distorting it or substituting another sound for it. If you are able to help him in this program of ear training, you must sensitize your own ears to variations in sound.

Several types of ear training are employed by speech correctionists in teaching new sounds. In connection with this training, remember that the child's total speech pattern must be considered as well as the individual sounds.

One technique of ear training is known as identification. Here the sound is not called by its letter name, but by the sound it makes—not *pee* but *puh*. It will help if you give the sounds special names. For example, the *s* sound may become the fly-spray sound, *ch* the train sound, *k* the coughing sound, etc. As you make the sound, go through the movement of spraying flies, making the *s* sound many times. Let the child spray flies with you, at first using just the motions, then adding the sound.

In like manner, *th* may be the sound the gray goose makes when she is angry; *v* becomes the airplane sound, *f* the kitty sound, *r* the sound of a growling dog, and *sh* the hush-the-baby sound. If you think of little jingles or stories, in which the goose says 'th! th!' many times, or the airplane hums *v* or the tire goes *s*, as the air goes out of it, you will be making effective use of identification. You should produce a series of sounds, including the sound which the child is learning to identify. The child responds by raising his hand when he hears the particular sound being taught. Or he may tap with a pencil when the sound is produced, or show by any other method that he recognizes the sound.

We can help the child isolate the sound in nonsense syllables, words and sentences. One speech game which never fails to delight little children is 'Climbing the Ladder.' You may use the fingers of one hand for a ladder which he 'climbs' up and down by touching your fingers with his forefinger, or you can draw a crude ladder with five or six rungs on a piece of paper. Give the child some pieces of bright paper. With a pencil, tap the first rung of the ladder and say *s*—if the *s* sound is being given. Climb up and down the ladder as you make this sound. Now, as you climb again, tell him to place a piece of paper on each step of the ladder on which you give the fly-spray sound. When you use another sound, he is to put nothing on the rung. A small paper doll may be used to climb the ladder, and when you use another sound she falls off and must start again at the bottom of the ladder.

For another game, to be used for any sounds, small pictures of various objects are cut from catalogs and magazines and mounted on cards which will stand much handling. Show the pictures to the child as you say the names of the objects. It is well to repeat this several times so that the child gets a clear sound picture. If the word contains the sound you are drilling, he is to take the card from you and place it before him. If it does not contain the sound, he will shake his head or say 'No,' and you will place it face down in a stack before you. If he misses a word, failing to identify it correctly, that card is yours. Count the cards when the game is over. The one with the most cards wins. You might also give marbles when he answers correctly.

Using the same cards, ask the child to listen carefully while you are producing the sound. Then show him the

picture as you say the names of the objects: 'Soap, ice-man, glass,' etc., and ask him to tell you where he hears the *s* or fly-spray sound—at the beginning, middle, or end of the word. Give him the pictures to which he responds correctly.

A speech lotto game also may be devised. Duplicates of the pictures on the small cards are necessary. Paste these across and down on several large cardboards. This game will be more fun if several children play. The large boards are placed before the children and the speech trainer holds the small cards, saying aloud the names of the objects. As identical pictures are found on the large boards, markers are placed over them and the first one to make a complete row, down or across, wins the game. If it is too difficult to find two copies of each picture, you might use letters, and call out the individual sounds. Be sure to say 'puh' and 'tuh' when stimulating the child with the *p* and *t* sounds, rather than 'pee' or 'tee.'

Give the child a ball. Read or recite slowly a list of nonsense syllables: *Sa, se, si, ti, to, soo,* or other sounds, syllables or rhymes. Ask him to bounce the ball every time he hears the *s* sound.

Give him a magazine and a pair of scissors. Ask him to cut out five pictures which have names with the *s* sound in them. These may be pasted in a scrap book, and a big, colored letter placed in the corner of each page to remind him of the sound he is to listen for in hearing the names of the pictures on that page.

Show him five objects, the name of one of which has the *s* sound in it. Then name the objects and have him pick up the one whose name contains the *s* sound. If he can read, give him some easy sentences, a short paragraph or a poem (poems have more interest than prose material) and ask him to circle or underline all the *s* sounds. Or copy similar material, leaving a dash or blank where the *s* sound should appear. Read it to him, omitting the sound, and then have him fill in the blanks with the letter for the missing sound as he reads the sentences aloud, being careful to articulate the sound as he writes the letter in each case.

These exercises which are set up for the *s* sound may be used for any other sound, and you will find that they bear much repetition. You may find that you must spend several lesson periods on the identification of just one sound. Even after you feel the child knows the sound perfectly he may need much more training to differentiate it from the others. If the child has any loss of hearing, the task of identification and discrimination of sounds may present a difficult problem. If he cannot identify a sound after several lessons, speak more loudly than usual. If he still fails, go on to discrimination lessons. However, if he continues to have difficulty, a hearing loss should be suspected. In that case, do not work further on the sounds. Consult your physician regarding the child's hearing, and check with the speech correctionist as to further methods of training.

A second technique of ear training is that of stimulation. The child is given the opportunity of hearing the sound many times. He is literally 'bathed' in the sound. This may be done as follows:

1. One manner of stimulation is through the use of picture cards. Find two copies of each picture and make up a set of paired cards. Divide these into two stacks, so that the matching cards are in different piles. Divide one stack between you and the child, or between the child and another player. Place the second stack face down and draw a card. Then say, exaggerating the sound you are stimulating, some such sentence as 'I see a saw.' Repeat this several times while the child looks to see if he has the card on which there is a picture of a saw. When he finds it, place it with the matching partner and go on to the next. The person who matches all of his cards first, wins. For the *h* sound, the sentence might be 'Who has the hat?' and for *sh*, 'Show me the shoe.' After the first few times of playing this game, ask the child to respond with the name of the

object. If he misses the word containing the sound you are drilling, the card goes to the bottom of the stack.

2. Another game which affords much opportunity for stimulation of sound requires very simple materials. With a piece of chalk draw on the floor a large circle, about three or four feet in diameter, depending upon the size of the child. (You may cut this circle from newspaper, if you prefer.) Hook two paper clips or safety pins together. Draw a line behind which the child is to stand. Take turns with him, tossing the pins or clips into a circle. Before he throws, chant, 'Se, so, see, now watch me,' or 'Si, see, so, watch me go.' Substitute any other sound for *s*. If the pins land in the circle, score one for the child, and give him another turn. He pitches till he misses. Then you take your turn. Whoever makes a score of ten first, is the winner. No score is given if the pins are thrown before the jingle is repeated. When this is used for drill after the child can produce the sound, have him repeat the jingle after you, before throwing. He will lose his turn if he throws before repeating the jingle.

Training in comparing a correct sound with one's own error is known as discrimination. This can be accomplished in several ways. Let us suppose you are still working on the *s* sound, and the child's error is the substitution of *th*, or even the complete omission of the sound.

1. Give him a ball. Tell him you are going to say some sounds. When you say *s*, or 'so' or 'soap,' as you prefer, he is to bounce the ball. If you say 'tho' or 'thoap' or *th*, he is to hold the ball over his head. Your sentence may be something like this: 's—, s—, th—, s—,' or 'Tho—, so— tho—, tho—, so—.' If he omits the sound, you may prefer to use a combination like 'sno,' or 'no' or 'ice' and 'I.'

2. Sit at the table. Place your hands on the table, and have the child place his hands on the table, too. Tell him you are going to make the sound *s* as in 'so.' When you say anything else, he is to tap your hands. If he fails to hear an error, or makes a mistake in slapping your hands when you produce the correct sound, tap his hands, giving the sound as you do so. Children find this game great fun, and listen very carefully. You will, of course, give more correct sounds than incorrect.

3. Place the picture cards on the table before the child. When you say the word correctly, he hands you the picture. Use pictures of soap, soup, cigars, etc. when working on the *s* sound. If you miss a sound, calling soap 'thoap' (or the particular variation of the sound made by the child), he will put the card face down on the stack before him. This exercise can be reversed when the child is drilling to establish the sound.

What Comes After Ear Training?

Only after the child has mastered this material is he ready to produce the sound himself. The first step will be the use of blowing exercises. Going on from this stage, have him pretend he is blowing petals across the water, without actually doing so. After several moments of 'getting the feeling' of this activity, you may have him attempt the *wh* sound. It is very important to impress the child with the blowing aspect of this sound. If he is not able to produce it after several trials, do not continue with this particular sound. Too much emphasis cannot be placed upon the danger of fostering speech habits which are worse than those he already has. If you feel his progress is poor, consult an expert immediately.

When you are ready to start teaching the *p* sound, you will employ exercises which call for pursing the lips and then blowing sharply. From these exercises, which are simply those of blowing, you introduce the *p* sound. In like manner, other consonants are introduced, with emphasis upon the direction of the breath stream through the mouth, since this usually is the most acute problem of the child with a cleft palate. You must watch to see that he does not develop some other sound in place of the correct one. In this event, you will be faced not only with the redirection of air through the mouth, but with the problem of teaching a completely new sound. It is especially important that the child learn to discriminate between the sound he is making and the correct one, as described in the above exercises, and then insert the new correct sound in place of his faulty one.

Now, compose a list of words containing the sound you are working on. After the child has learned to produce the isolated sound, he must learn to produce it in words. He should drill on words which contain the sound. Be sure your words contain the sound in all positions—at the beginning, middle and end. If you are drilling the *p* sound, include such words as 'pear,' 'happy,' and 'leap.' In these words, as you see, the *p* occurs in the initial, medial and final position, respectively. Use words which are in your child's vocabulary, and provide an ample list of at least thirty words for each sound.

After the child is able to produce the sound, his exercises may become more complex. Instead of saying just words or syllables, he should use the sound correctly in sentences. He may make sentences about the picture cards he has used in previous exercises. He may paste pictures in his scrap book and make up stories about them, emphasizing one sound, or even one word, in each story. For example, a picture of a house might be pasted in a book, and the word *house* used in a drill for the final *s*. You could write down the sentences as the child composes them, giving careful attention to his production of the final *s* sound. For example, he might make such sentences as these:

This is my house.
My house is white.
My house has a red roof.
My house has two windows.
My house is very big.

Again, you may find a picture of children picnicking or eating lunch at school, or you may cut out a small basket from brown or yellow paper. With a picnic theme a story can be told, stressing a certain sound. Let us suppose the sound is *k*. The child will think of words beginning with that sound, and we shall pack the basket with *k* foods (it might add interest to call the foods his 'k ration'):

Mark and Kate had a picnic.
They went to the County Park.
Mother packed the basket.
It held cake, candy, milk, chicken, pickles, napkins, carrots, corn muffins, paper cups (etc.).

Lists for young children can be made by using the same sentence over and over, and by cutting out pictures or using the small gummed seals available at ten-cent stores. For example, for the *p* sound, you might use a series such as this, completing the sentences with cutout pictures or seals:

I like (pie)	Look at the (slipper)
I like (apples)	Look at the (paper)

For the *s* sound different colored stars might be used, as follows:

I see a (blue star)	I see a (silver star)
I see a (red star)	I see (two stars)

How Is a Speech Lesson Planned?

As you go through the described procedure to the point where the child is making a sound correctly in isolation, you may start work on the identification of a new sound. In this manner, you may be working on as many as three sounds in one lesson. Illustrating this is the following outline of a complete lesson:

1. Exercises for muscles of lip and palate. These should include about two minutes of one of the blowing exercises, described above.

2. Review of previous sound. If this were the *k* sound, the child might identify all the *k* objects in the room or picture.

3. Sentence drill on a sound which the child has learned to identify, differentiate and produce. If this were *p*, the child might read a series of sentences containing a generous number of *p* sounds. For a child who cannot read, pictures would be used.

4. Production of a sound which the child has learned to identify and discriminate. The next sound in order would be *t*. Use a mirror to aid the child in 'seeing' the sound. Say 'tuh' five times, and have him repeat it once. When he forms a new sound, you must always be sure he has sufficient pressure to force the sound out. In the case of *t*, for instance, be sure it actually is explosive. You may even have to go back to a blowing exercise to illustrate the characteristics of the sound. After he can produce 'tuh' in isolation, exercise in simple

nonsense syllables can be introduced to teach the sound in its three positions. The following nonsense syllables illustrate this procedure. The dashes indicate slight pauses.

(*i* is *ee* as in *feet*)
t-t-i t-i ti
i-t-t- i-t it
i-t-t-i i-t-i iti

(*e* is *e* as in *bet*)
t-t-e t-e te
e-t-t e-t et
e-t-t-e e-t-e ete

(*a* is *a* as in *art*)
t-t-a t-a ta
a-t-t a-t at
a-t-t-a a-t-a ata

(*o* is *o* as in *snow*)
t-t-o t-o to
o-t-t o-t ot
o-t-t-o o-t-o oto

(*u* is *u* as in *June*)
t-t-u t-u tu
u-t-t u-t ut
u-t-t-u u-t-u utu

5. Identification of a new sound if the child successfully produces the previous sound. Decide upon the descriptive name for the *s* sound, which is next in sequence. Talk about the sound. If you call it the teakettle sound, or the snake sound, be sure the child finds the name descriptive. You might read him a story which has a number of *s* sounds in it, or do another of the exercises described in the foregoing exercises. Such a procedure will make the child aware of the sound in its correct form.

You may not achieve all of these aims in one lesson, because naturally you will not want to go too fast. If you encounter difficulty, or are uncertain as to how to proceed, do not hesitate to consult an expert. When you are able to cover this much successfully, the next lesson will be:

1. General exercises
2. Sentence drill for *t*
3. Production of *s*

In addition to the technique described, there are some special methods which are useful in working with these sounds:

1. Using a small mirror to watch the rise of the palate in the *ha, ah,* and *a* sounds, the child should be aware of palatal movement on these sounds. A cold mirror may be held under his nose as he makes a sound. If there is steam on the mirror, he is nasalizing the sound.

2. He may produce the vowel first by pinching his nostril without covering his mouth with his hand, and then produce it without pinching. There should be no change in the sound.

3. Combining the vowel he is practicing and a nasal sound often provides the necessary contrast. Have him say, 'M—ah,' 'A—n—ah', or 'A—ng—ah.'

4. Another device helpful to the production of clear sounds is to have the child yawn before beginning phonation. This also is a good relaxation measure.

5. One good idea is to keep a notebook in which to record the child's progress. Pictures and colored pencil decorations will make the book interesting so that he will enjoy looking at it. Record the date of each lesson, what was attempted, and what you feel was accomplished. This book also will be helpful when you return to the clinic. From it, the expert will be able to evaluate the training you have given, and the progress you have made; he may discover that some material has been unsuccessful, and suggest other methods of training, particularly as they apply to your specific case. Your notebook should be kept meticulously up-to-date.

How Are the Consonant Sounds Made?

The consonant sounds are the most difficult as a general rule. Do not be discouraged if your work on these progresses slowly. Speech teachers have different opinions as to which of the consonants should be taught first. Many prefer to begin with *h*, because it is an unobstructed sound. If the child can pant like a dog, he can produce this sound. From *h* and the blowing exercises, it is easy to go to *wh* and *w*, this time teaching the child to round the lips as he makes the sound.

The front sounds, *p* and *t* are often taught next. These sounds require the building up of air pressure in the mouth, to be released with a quick explosion. In making the *p* sound, the lips are shut tightly and the soft palate is raised to check momentarily the issuing of breath from the lungs. The lips are then separated quickly and the breath escapes with an explosive sound. The teeth are separated slightly and the tongue is in a neutral position.

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The vocal cords do not vibrate. In forming the *t* sound, the tongue tip is placed behind the upper teeth. Air pressure is built up, and the sound is released quickly with a little puff of air.

The sounds of *k* and *g* are more difficult. These sounds are formed by bringing the back of the tongue into contact with the soft palate, building up air pressure, and exploding the sounds. Mirror practice will help here, as the child can watch his tongue movement. This procedure should not be used, however, unless he fails to get the sounds by methods already described. In making these sounds, it is very necessary to build up air pressure and direct the sound through the mouth.

The sounds *b* and *d* are next in order. They are formed in much the same way as *p* and *t* and are accompanied by vibration in the throat (*t* is like *d* and *p* like *b* except that *d* and *b* are voiced, *t* and *p* voiceless).

When teaching the *f* and *v*, if the child cannot get the sound by stimulation, show him the correct placement for its formation. These sounds are visible on the lips. The lower lip is drawn upwards and slightly inwards, and placed lightly against the edges of the upper teeth. The tongue is inactive. The breath passes out in a continuous stream and with audible fricative sound, through the crevices between the lower lip and upper teeth, and through the spaces between the upper teeth. The vocal cords do not vibrate in producing *f*. The formation of *v* is just the same as for *f*, except that the vocal cords vibrate on *v*, but not on *f*. This difference can be stressed by pointing out that *f* is a whispered sound and *v* is voiced. The child may put his hand on his throat and feel it vibrate as he says the *v* sound. Word pairs may be given to emphasize the difference between these consonants:

vase-face	have-half	van-fan
leave-leaf	save-safe	view-few

(This method also is to be used with other pairs, such as *p* and *b*.)

When the training of *f* and *v* is completed, *th* sounds may be drilled. In the voiceless *th* the tip of the tongue is placed lightly against the lower edges of the upper teeth. The breath is emitted in a continuous stream with a fricative sound through the narrow aperture between the teeth and tongue tip. The vocal cords do not vibrate. By adding voice to this sound you get the voiced *th* as in *then*.

The *s* sound is particularly difficult to teach. The child may be able to imitate the sound as you produce it. If he cannot, begin from the position of the *th* sound. Have the child say *th* as in *thin* several times. Now have him slowly draw his tongue further back in his mouth until he is producing *s*. As he slides his tongue back, be sure the child keeps the breath stream coming out steadily between the tongue tip and the edges of the upper teeth, as for *th*. As he does this the sound will change from *th* to *s*. Have him produce *s* in isolation several times, in order to 'feel' the position. Then try *th-s* very slowly at first. Return to making *s* alone. Next, instruct the child to draw air in and out of his mouth while holding the *s* position. The *z* sound is achieved by adding voice to *s*.

What Books Are Helpful?

There are many excellent books which contain carefully compiled speech material for drill and practice. For the young child some helpful books are *Better Speech and Better Reading* (Schoolfield, $1.75), *Defective Consonant Sounds* (Nemoy and Davis, $4.25) and *Speech Sounds for Little Folks* (Stoddard, $2.00). All of these books are published by the Expression Company, Boston.

How Successful Can Speech Training Be?

It may be emphasized again that the speech of a child with a cleft palate may be greatly improved by training. Some children with this condition may achieve normal speech. Even though some speech errors may remain after completion of the work outlined

these need not be handicapping imperfections. The child's ultimate success will be the reward and the measure of your patient and understanding help.

What Can Be Done for the Child as a Person?

In addition to providing the child with the very best surgical, dental and speech therapy, parents should also observe these rules:

1. Regard him as a normal child who has been born with a cleft palate, not as a 'cleft-palate-child.' He is normal in more respects than he is abnormal. Therefore, treat him as you would any other child, except perhaps in your attention to his health. He should have the same privileges and responsibilities as other children in your home. Neither indulge nor ignore him and, above all, do not make him unduly conscious of his defect.

2. In talking about the child with other members of the family, or with friends or relatives, try to be as objective as possible. Remember, your child and your friends will react much as you react. Admit the child's defect without attaching undue significance to it. Discuss it calmly. Remember, the child could have had many defects which do not lend themselves so well to repair. Surgery can do much for this child. Don't let well-meaning friends 'cluck' over him, for he will quickly sense their concern.

3. Let your child feel that he is loved, that he is secure, and that he is a part of your family group. Never once let him feel that you are ashamed of him or that he is less competent than other members of the family, solely because of his cleft palate. This does not imply that you must smother him with affection or over-protect him. That, too, has ill effects.

4. Teach the child to be objective about his problems. In time he will have to meet the curiosity of his playmates. Enable him to face this situation by planning ahead. Discuss his cleft with him in a simple, matter-of-fact way that he can understand. When other children ask about his scar, he may tell them simply that it is from an operation on his mouth. Point out to him, if he is unhappy about his appearance, that many people are dissatisfied with their buck teeth, crossed eyes or crippled arms and legs. Teach him to laugh at himself, to wear his 'burdens' lightly. A sense of humor will save many difficult situations.

5. Encourage your child to cooperate with the surgeon, dentist and speech correctionist. Do not set any standards for his progress in these fields so high that they are unattainable. Such standards make a feeling of failure inevitable. Realistic goals make for a growing sense of accomplishment. 'Nothing fails like failure; nothing succeeds like success.' It goes without saying that you will give the various specialists your whole-hearted cooperation.

The parent of a child born with a cleft palate faces many problems, but if the child is given the intelligent guidance and training and the sympathetic understanding he deserves, there is no reason why he should not develop into a normal, healthy, happy, well-adjusted person. There is no reason to be found in the cleft palate itself, if properly cared for, why he should not achieve reasonably good or normal speech, and be accorded normal opportunities for achievement along the lines for which he is fitted.

BEYOND WORDS

Bronislaw Malinowski, in his study of primitive languages, finds that 'to regard (language) as a means for the embodiment or expression of thought is to take a one-sided view of one of its most derivate and specialized functions.' Language is rather a 'mode of behavior.' Linguistic events are therefore not to be studied in isolation in terms merely of their lexical content or logical coherence, but in their relationship to the social institutions, activities, and rituals of which they are a part. In short, linguistic events are explicable only in terms of their non-linguistic context.

S. I. HAYAKAWA, *Etc.*, Vol 2, No. 2, Winter, 1944-1945, p. 117.

News and Announcements

(Continued from Page 136)

The University of Washington is offering a beginning course in speech correction, advanced work in clinical practice, and a graduate seminar in speech correction. There are substantial offerings in allied departments in anatomy, psychology and education.

The College of the Pacific at Stockton, Calif., has organized an extensive program of speech correction for the summer of 1945. The Department of Speech, under the chairmanship of Dr. Roy McCall, has instituted plans for bringing speech correction cases and their parents to the Speech Clinic for an integrated program of work with the parents as well as with the children. Courses in speech pathology, semantics and speech correction will be taught by Dr. Wilbur E. Moore, and Professor Edward S. Betz, and an all-day speech clinic-laboratory will be conducted by them also.

The Brigham Young University is offering a course in speech correction during the first term of the summer session, which will begin on June 11, and close on July 20, 1945.

The regular spring meeting of the Minnesota Speech Clinicians' Association was held on Monday, March 26, 1945. Mr. Ray Bixler, Counselor in the University of Minnesota Student Counseling Bureau, spoke on the subject, 'The Implications of Non-Directive Therapy in Speech Correction.'

An extensive course in speech correction was given to seventy-five teachers of the Jordan School District in Salt Lake County, Utah, by Alonzo J. Morley. This group was composed of elementary and grammar school teachers of the public school system. At the completion of the course there was a general feeling, as expressed by the Superintendent and Supervisors of the district, that significant speech consciousness on the part of the in-service teachers had been achieved. The officials of the district are of the opinion that speech training on the elementary level, while the speech habits of the child are being formed, is a good means of eliminating the severe emotional maladjustment that develops as the speech defective child is allowed to continue in his schooling.

The Los Angeles City Schools opened a pre-school coordination training class for spastic paralytics last February. A teacher qualified to train children in coordination of muscles, a necessity before they can enter school, is in charge of the program. Special equipment has been purchased for the classroom which can accommodate fourteen children. It is the first class of this kind in Southern California.

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NON-SENSE

It constitutes a great advance in our critical attitude toward nature to realize that a great many of the questions that we uncritically ask are without meaning. In order for a question to have meaning, it must be possible to find operations by which an answer may be given to it. It will be found in many cases that the operations cannot exist, and the question therefore has no meaning.

P. W. BRIDGMAN, *The Logic of Modern Physics* (Macmillan, 1932)

The Rehabilitation of Aphasic Veterans

Ollie L. Backus*

APHASIA has been treated in the literature largely from the point of view of description and diagnosis. Very little has been published on the rehabilitation of aphasic patients. This is probably due to several factors. Aphasia has been a relatively rare speech disorder. Many aphasic patients have died, have been too old or in too precarious health to warrant extensive retraining. The prognosis for the recovery of speech has been widely assumed to be poor.

With the war has come increased emphasis upon the need for providing maximum rehabilitation for each disabled soldier. In the case of soldiers disabled by aphasia, the responsibility for rehabilitation rests with speech pathologists and speech therapists. That responsibility is three-fold. We must help the patient to make the best possible adjustment personally, socially, and economically, regardless of the degree to which it is possible to restore previously acquired skills in the various areas of language. We must employ those techniques which will bring about the maximum recovery of language abilities. Finally, we must evolve a program which will achieve the best results in the shortest possible period of time.

For several years the University of Michigan Speech Clinic has been interested in the development of techniques for rehabilitation. For the past ten months these investigations have included the treatment of aphasia. During the last three months the study has also included some twelve to fifteen aphasic soldiers who have arrived at the Percy Jones General and Convalescent Hospital at Battle Creek, Michigan. This part of the study has been carried on with the cooperation of Miss Vivian Mowat, speech therapist at that hospital.

The aphasic patients under study present loss or disturbance in one or more of the following areas of language: understanding of speech, understanding of written or printed material, use of purposeful speech, use of purposeful writing, accuracy in speech, accuracy in writing. The patients vary widely in degree of disability, ranging from an almost complete loss in all of these areas to marked loss in but one. Complete medical records, case histories and examinations have been made of all of these patients but these facts will not be presented now. The period of time allotted for this report can be used most productively by discussing a few of the principles which appear to be most significant in the rehabilitation of aphasic persons.

FIRST OF ALL, we believe that the intensive type of program provides the best medium for the rehabilitation of aphasic persons. This requires attendance at the speech clinic from five to seven hours a day. It includes both individual and group instruction, projects in and out of the clinic, group singing, creative dramatics, club meetings, and social activi-

*Dr. Backus received her professional training at the University of Michigan (B.A., 1929 and M.A., 1930) and the University of Wisconsin (Ph.D., 1933). She is Assistant Professor of Speech and Acting Manager of the Speech Clinic in the University of Michigan. Dr. Backus presented this paper before the American Speech Correction Association, Chicago, December 30, 1944.

ties planned and carried out by members of the club. The group may be made up of both aphasics and non-aphasics. The less severely handicapped patients can join the regular speech classes. The seriously aphasic patients meet together for speech classes but join the larger group for other activities.

Such a program has proved advantageous for several reasons. It provides a real opportunity to help the patients to readjust personally and socially. This problem of readjustment is acute in all persons with aphasia, especially in veterans who are faced with such a serious handicap so early in life. A great deal of mental hygiene is necessary but it must be taught almost entirely by the indirect method at first. Getting aphasic persons to engage in activities to the limit of capacity at any given time, to behave as nearly like normal people as possible, is a big step in helping them to readjust. The problem of readjustment cannot wait until some future time when they shall have recovered more use of speech. It must begin on the day that rehabilitation starts. Obviously, the opportunities are richer if real life activities are provided in a controlled situation such as that which exists in a speech clinic.

It provides a desirable framework for the teaching of speech. The impulse for speech grows out of group activity in real life situations. This is true of young children who are learning speech and of persons young and old as they use speech. Numbers of speech therapists have become convinced that this basic principle must be applied to speech rehabilitation. Consequently, they have discarded drill materials consisting merely of numbers of unrelated sentences in favor of drill materials consisting of speech responses which are used in situations. This type of rehabilitation is especially demanded in the case of aphasics, who require the highest type of motivation and the richest possible associations. Thus we correlate drill and actual performance of activities such as greetings, introductions, the order of business in club meetings, appropriate questions and answers used in shopping expeditions, etc. A little imagination and careful planning on the part of clinicians makes possible for each patient the type of activity and response at which he can succeed at a given period in training. For example, each aphasic can respond to roll call, either with 'Yes,' 'Here,' the last name, or the full name. Each can say 'Aye' with the others in voting. Some can second motions. Those still more able can make motions. All can serve in some way on committees and take part in programs. These activities provide both drill material for classes and immediate carry-over of that material into real life situations.

The intensive type of program undertakes the process of rehabilitation with greater economy of time. All cases, and veterans especially, want to obtain the greatest return in the shortest possible period of time. The return is greater because of increased motivation and practical application. The total period is shorter because of the greater efficiency of the method and the more efficient use of the hours within the training period.

SECOND, we have found that certain basic techniques should precede speech training as such in many cases. I should like to mention a few of these. The first we call voluntary inhibition. One of the biggest difficulties of some aphasic persons is the struggle they go through in attempting to speak. The harder they try, the more upset they become and the more confused their speech is. Before such patients can begin to work on speech, they must learn to stop trying so hard, to inhibit voluntarily those random movements, sounds and phrases. They must be willing and able to make one attempt and if that is not right, to relax and become calm before making another attempt.

Another basic technique is volun-

tary use of muscles. We must remember that abilities which normal people take for granted as being very simple are complicated for aphasic persons. Before they can imitate the complex muscular movements involved in the production of speech sounds, many aphasics must learn to imitate gross muscle movements first; that is, movements of the arm and hand, then movements of mouth, tongue, lips and jaw, as in a single speech sound. With guidance and practice they learn to imitate movements on the first attempt. This ability to imitate and to control movements voluntarily is an important forerunner to speech training.

Other basic techniques involve sense training. All aphasics need to develop every sensory aid possible and they must sometimes learn to rely more heavily upon one sense than most people do. Patients who have difficulty in understanding speech profit from intensive instruction in the art of lip reading. Even those patients whose difficulty is chiefly on the motor side profit from instruction in lip reading because of the help it affords in imitating movements. Sense training should also include hearing for patients with a perceptive loss. The purpose at first is to teach the patients how to get auditory, as well as visual, cues even though they cannot understand all of what is being said. The sense of kinesthesia is also an important aspect of training. This is not so much to help patients determine when a movement or series of movements is right, because most of them do know when they achieve the correct response; the purpose is rather to help them get the right response on the first attempt. In this connection, the development of the sense of rhythm is very important as a prelude to instruction dealing with speech rhythm as such.

How long aphasic patients must spend upon the preliminary techniques depends, of course, upon their particular needs. If they need the basic skills, we feel that it is time well spent for them to concentrate on them. In the intensive program it is possible to start a minimum amount of speech training quite early so that instruction in preliminary skills and speech skills can proceed side by side. As training progresses instruction in speech assumes an increasingly more prominent role, and the basic techniques are at length taught incidentally.

FINALLY, we feel that certain principles are basic in developing techniques of speech re-education for aphasics. It is important that we apply the knowledge that speech is a pattern of sounds made by a coordinated series of muscle movements. The ability to speak cannot be built up sound by sound in an aphasic any more than the ability to read lips can be built up sound by sound in a hard of hearing person. Chances of success are far greater if the emphasis is upon speech patterns. It is interesting in this connection to note some of the recent developments in the field of teaching foreign languages by the intensive method. Such instruction is no longer based upon traditional methods of learning words and rules of grammar, it is based first of all upon the speech patterns of particular languages. Let us consider how this principle operates in the reteaching of speech to aphasics. Some patients have labored speech and speak word by word and syllable by syllable thus: 'I - live - in - Mich - i - gan.' Others present very rapid and slurred speech, leaving out syllables and words. Other patients cannot think what to say, or if they get one word or syllable they cannot put it in a sentence. In all of these cases, training in the rhythm of speech, i.e., attempting to a get a normal speech pattern, is the most effective way of teaching. We have found that group singing is effective, not only as a morale builder but also as a means of getting the patient to use connected speech even though the speech pattern be one of song. Many are not able to do more than

hum at first, but words and phrases come later. Speaking in unison and beating out the rhythm produces striking results in these cases. It is certainly more efficient both in terms of results and time to get the normal pattern of a sentence through training in rhythm than it is to work laboriously trying to teach severely aphasic persons elements of grammatical form.

We should apply the principle that speech is a total bodily response and accompanies motor activity. It is a known fact that some spontaneous speech often occurs in aphasics when they are doing things. Therefore, we have explored the use of pantomime as a clinical technique. Pantomime as a prelude to impersonation lends itself very well to progression from the simple thing at which the aphasic person can succeed to increasingly more complicated situations involving both motor activity and speech. We have found that pantomiming an activity is often a more successful therapeutic device than to have the patient actually go through the real experience because it demands from him the exercise of memory, imagination and voluntary calling forth of muscular movements. In addition to using the speech responses which were planned, the patient frequently utters speech that was unrehearsed and not even presented in units of class work.

We should apply the principle that learning proceeds faster if the patient experiences the satisfaction of success. Thus it is necessary for the instruction to be carefully graded so that the learning process will be built upon a series of successful performances. For example, most patients who have difficulty in writing can copy written material. Their instruction should begin with writing from copy. Then it should progress to writing from dictation, and thence to writing from memory. Patients whose ability to write has not been seriously impaired will profit from the exercise of that ability to reinforce the other aspects of language which have been effected. Another example of progression is to be seen in teaching a patient to understand speech. Instruction begins with the greetings or introductions, in which there are cues to comprehension other than speech. It proceeds to simple directions, simple requests, and then on to simple conversation. Progression in the use of speech goes from unison speaking to imitation directly after hearing the pattern, to delayed imitation (that is, attempting to make the response a few seconds after hearing it), then to giving the oral response from memory at an appropriate time. To establish this last ability, a useful drill is to have the patient fill in the last word in a sentence which is shown to him. For example, 'I eat butter on..... I drink.....'

One final principle should be emphasized. That is the need for simplicity in instruction. We have found in vocabulary presentation that two new words a day is about the maximum that aphasics can take. The clinician who lacks experience in teaching aphasics is apt to become panic-stricken in wondering how he can provide enough teaching material for one class period with but two new words. The experienced clinician, however, knows that effective lessons can be built around two words if they are used in a variety of ways within the lesson. Progress is faster if each lesson provides for a great deal of repetition but with ample variety so that patients will experience the satisfaction of motivation and successful performance.

THESE are the highlights of our work with aphasics up to the present. Those of you who are especially interested in this problem may wish to obtain a copy of a bulletin entitled *Aphasia in Adults*, just published by the University of Michigan Press. While this bulletin was written as part of our program to educate families and friends of aphasic patients, some

of the points I have mentioned are treated in somewhat greater detail than has been possible in this report.

Anyone engaged in the rehabilitation of aphasic persons knows that aphasia is a serious disorder and that re-education at best must be slow, laborious and time consuming. Nevertheless, we are becoming increasingly optimistic as we work with these patients and develop more effective techniques of rehabilitation. Certainly before we make a judgment about the prognosis of aphasia from a speech point of view, we must be sure that our techniques of rehabilitation are the best that can be developed and applied to the treatment of this problem.

News and Announcements

(Continued from Page 148)

Miss Charlotte Wells, Director of the Speech Clinic, Mount Holyoke College, will teach at the University of Wisconsin this coming summer.

Dr. William Temple, Brooklyn College, is now engaged in research for the army and navy.

Miss Adaline Bullen, teacher of speech at Colorado General Hospital, gave two papers on Speech Therapy to special medical groups this spring.

Two members of the University of Minnesota Speech Clinic staff, Marion Krueger and Katherine Thorn, have been elected to membership in the Minnesota Association of Applied Psychology.

Dr. Robert Harrington recently accepted the position of Director of the Speech Clinic at the University of Denver.

Dr. Edward Shulman recently completed his work for the Ph.D. degree at the University of Iowa and is now on the staff of the Hearing Unit at the Borden General Hospital.

Mr. Oliver Nelson has joined the staff of the University of Washington to work in speech correction and speech education. He formerly was in charge of speech correction at State Teachers College in Ellensburg, Washington. For the past two years as Supervisor for Exceptional Children in the State Department of Education of Washington he has encouraged the development of speech correction programs in the schools.

Miss Jacqueline Keaster has resigned as Rehabilitation Aide in the Borden General Hospital (U. S. Army), Chickasha, Oklahoma, to accept a position as Assistant Professor of Speech and Otology at the State University of Iowa. She will teach courses in lip reading and speech training for the hard of hearing, and supervise clinical work with hard of hearing cases in the Speech Clinic and in the Otological Clinic.

Mrs. Mary Smith Leonard and Mrs. Louise Maddy Winter recently graduated from the University of Iowa and have joined the staff of the Hearing Unit in the Borden General Hospital, Chickasha, Oklahoma.

ANXIETY'S ROOTS

If one makes a long enough search for a cure for stammering, a point is reached where one recognizes oneself to be in search of a cure for all the defects and flaws in the structure of societies.

W. NUTTALL, "Memoirs of a Stammerer," *Psyche* (1937)

NAÏVETÉ

The less a science has advanced the more its terminology tends to rest upon an uncritical assumption of mutual understanding.

W. QUINE, "Truth by Convention," *Philosophical Essays for A. N. Whitehead* (Longmans, Green)

WHAT TEA MEANS

Members of the Hung Society (Chinese) make use of a complex system of hand-signs by which they can converse with each other in secrecy, not unlike the deaf and dumb. In addition, various bodily postures and manual attitudes are brought into their ceremonies, and furthermore serve to establish membership and to convey signals or messages when amongst outsiders.

Members also extend their system of signs to include the employment of inanimate objects. This mode of signalling reaches heights of great elaborateness. They have their own methods of holding their hats; of placing their shoes on the doorstep; of carrying a stick or umbrella; of lighting a cigarette; or offering or accepting a cigarette or a box of matches. There exists a complicated language of the tea-table, whereby a varying arrangement of cups and teapots can carry on a prolonged conversation, without a word being uttered. Other groupings of domestic articles can become eloquent. When rioting is afoot, a member places on his doorstep a large bowl of water, across which is laid a knife and on this a small cup of water. When a member enters a house he holds his pig-tail in the right hand and slowly twists it from left to right. Should his object be to borrow money, he accepts a cup of tea offered him, but instead of drinking it, he places it at the corner of the table. If the householder is willing to lend, he silently raises the cup and drains it; otherwise he quietly moves the cup untasted to the center of the table.

MacDonald Critchley, *The Language of Gesture* (Longmans, Green, 1939)

GESTURES IN APHASIA

In cases of aphasia due to focal cerebral lesions the part played by gesticulation forms an interesting if somewhat neglected subject. We may say at once that in the vast majority of cases, verbal speech suffers considerably more than gesture language. Even when the available vocabulary is grossly reduced, the aphasic patient can usually express himself clearly by means of pantomime. The meaning of such sign-movements is unmistakable even though the right upper extremity, by reason of paralysis, may not participate. Undoubtedly, however, in a large number of cases, the store of pantomime has suffered a depletion, and the mimicry falls short of normal standards in respect of richness and complexity. Thus a speechless aphasic patient cannot make his wants known as clearly as a patient who is rendered temporarily speechless from, say, an operation or painful affection of the mouth, tongue or jaw. In this way we observe that the damage to the speech-mechanism operates at an early point in the pre-verbal processes, and it is only in the slighter cases, where the immediately pre-verbal stages are defective, that one can regard the pantomime as approximately normal. Usually it can be stated that gesture suffers less than pantomime in cerebral speech affections.

MacDonald Critchley, *The Language of Gesture* (Longmans, Green, 1939)

Speech Disorders In World War II

William G. Peacher*

THE rehabilitation of army personnel with hearing and speech defects during World War I was under control of a special section at General Hospital No. 11 at Cape May, New Jersey. One hundred twelve patients were given speech reading instruction with good results (8). Fifty-four cases received specific speech correction, 37 of which were classified as follows: aphasics, 14; imperfect phonation, 13; stammering, 3; aphasic and stuttering, 1; multiple neuritis, 1; aphonia, 2; stuttering, 2; stammering and stuttering, 1. Detailed results are given for only 11 patients. Four were discharged cured, two transferred to other institutions and five remained. This hospital closed on July 7, 1919, and the twenty remaining cases were then transferred to General Hospital No. 41 at Staten Island, New York. The last report showed that on November 1, 1919, there remained only seven patients with hearing disabilities and fourteen with speech defects. It was anticipated that these men would conclude their instruction by the end of the year (2). Frazier and Ingham (4) described the late symptoms seen in a series of 200 head injury cases from October, 1918, to June, 1919, at General Hospital No. 11 in World War I. Residual language involvement remaining six months or more post-injury was seen in sixteen cases. Ten were of the motor or dysarthric type and three showed sensory aphasia with alexia. The remaining three were of the mixed variety. Although none was severe, additional improvement resulted following speech training.

REHABILITATION is even more important in the present war because of the large numbers of men in military service. The army has recently designated three hospitals to supervise the problems pertaining to the deafened soldier: Deshon General Hospital, Butler, Pennsylvania; Borden General Hospital, Chickasha, Oklahoma; and Hoff General Hospital, Santa Barbara, California. Speech reading and correction are included in the curriculum. Hillman (5) states that the average annual admission rate to army hospitals for impaired hearing was 1 in 1,000 on December 30, 1943. Further, 313 patients were receiving treatment for hearing defects up to January 1, 1944, at the above institutions.

The importance of such a progam for the rehabilitation of speech disorders is recognized, but at present no similar system is available in the army. Major Barton (1) from the Office of the Surgeon General states, 'While there may be a need for speech correction on a larger scale outside of hospital centers, that need has not communicated itself to this office. The screening process has probably eliminated most of the speech cases at the induction point. War casualties have revealed only a very limited number and there has been no request from hospitals for special services. Rehabilitation work in speech training will, in

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most instances, be carried out in hospitals under the jurisdiction of the Veterans' Administration.' Further evidence in this respect is shown by numerous reports from neurosurgical, neuropsychiatric, plastic and otolaryngological centers where only occasional cases with speech implication are being seen (**7**). At present the Navy is organizing a hearing and speech unit at the Philadelphia Naval Hospital, but as yet no reports are available from this source.

Selective service figures showed that 0.40 per 1,000 men examined were rejected by induction boards for speech defects alone from November, 1940, through February, 1941 (**6**). This figure does not embrace the cases excluded for other causes with associated speech involvement. More recent statistics have not been published.

Darley and Spreistersbach (**3**) made an unofficial survey of speech disorders at Ft. Riley in 1942. Forty-four cases were seen and studied over a three-weeks period, 22 of which were treated either individually or in small groups. Eleven were stutterers and eleven were men with foreign dialect and articulatory defects. Although no detailed report is given, improvement is mentioned.

No further data have appeared concerning the incidence of speech defects in the present war. The present report is based upon the type and severity of cases that are now being seen as a result of wounds sustained in action and, further, will include the pre- and post-induction language disorders that have been encountered by the writer.

Methods

ALL PATIENTS presenting an impairment of speech admitted on the neurosurgical service at the Brooke General Hospital from May 7, 1943, to September 1, 1944, have been included in this review. Additional cases, referred because of the writer's interest in speech disorders, were seen in consultation for other departments. The dyslogias with difficulty in expression due to illiteracy and the psychoses were seen fairly frequently on the psychiatric section but were not included in this survey. Derangements associated with mental deficiency may be amenable to rehabilitation, according to the results from the last war. Also not mentioned is a fairly large group of patients observed with foreign dialects and functional defects of articulation (dyslalia) other than sigmatism. There is no question as to the value of training these men, although their periods of hospitalization are usually short, since they were admitted primarily for various operations or intercurrent medical diseases. Admission was never necessary on the basis of language difficulties alone.

All patients received complete physical and neurological examinations. Psychometric analyses were conducted when indicated, particularly in the dysphasias. Routine speech tests were employed with emphasis on the presenting disorder. Specialized studies including X-rays, lumbar punctures, electroencephalograms, pneumoencephalograms, ventriculograms and operations were all utilized, depending upon the individual problem. All unquestionably play a definite part in an adequate and thorough speech analysis. The determination of the neuropathology is always important in directing rehabilitation and as a guide in ultimate prognosis.

All problems were discussed individually with the patient and frequent tests were conducted, especially with the dysphasias. As much time as possible was devoted to rehabilitation as long as patients were in the hospital with improvement. However, no definite schedule was possible, due to lack of time and responsibility in other neurosurgical problems.

The types of problems encountered and the number of cases of each type are to be summarized as follows:

1. Dysarthria	47
2. Dysphasia	32
3. Stuttering	24
4. Dysphonia	12
5. Cleft palate	3
6. Dyslalia	2

Dysarthria (N-47)

On an etiological basis the 47 cases of dysarthria are to be classified under the following headings:

I. Central Nervous System		18
1. Cerebrum	12	
Cranio-cerebral injuries		4
Post immunization encephalopathy		2
Multiple sclerosis		1
Post partum encephalopathy		1
Paresis		1
Sulphonamide sensitivity		1
Thrombosis, right innominate artery		1
Tumor, metastatic melanocarcinoma		1
2. Cerebellar	5	
Cranio-cerebral injury		1
Tumors (acoustic neuroma, astrocytoma, ependymoma, medulloblastoma)		4
3. Bulbar	1	
Syringomyelia		1
II. Peripheral Nervous System		29
1. Facial (peripheral) Paralysis (One bilateral with left XII One bilateral with left X and XII)	21	
a. Traumatic		10
b. Spontaneous (Bell's Palsy)		5
c. Post-operative		6
Parotid tumors, calculi		3
Meniere's disease		1
Trigeminal neuralgia		1
Mastoiditis		1
2. Hypoglossal Paralysis	4	
a. Tumors (hemangioma of tongue)		1
b. Traumatic		1
c. Inflammatory		1
d. Post-operative (arteriovenous aneurysm)		1
3. Miscellaneous	4	
a. Acromegaly		3
b. Polyneuritis		1

In most of these cases the individuals compensated for their defects fairly well, involvement being elicited only by routine testing. Only occasional training was necessary in this group, much depending upon rectifying the underlying pathology if and when possible.

Case 1:

Mode of Injury. Patient is a 23-year-old soldier who sustained a penetrating wound by shell fragments in enemy action on July 28, 1943. Point of entry: mastoid portion of the right temporal bone, traversing both cerebellar hemispheres and lodging in the left. Patient was dazed but not unconscious. At first unable to move the right upper and lower extremities or to speak without slurring. Wounds debrided and patient evacuated for further treatment.

Associated Injuries. 1. Hemorrhage into the right middle ear. Hearing, A.D. 3/15, A.S. 15/15. 2. Penetrating shell fragment into right chest posteriorly with lodging close to third rib.

Course and Residuals. On examination patient presented typical cerebellar signs on the right side with nystagmus, incoordination, ataxia, asynergia, hypotonia and dysarthria. Speech was quite irregular and somewhat jerky. Articulation was affected more than phonation. X-rays of the skull showed a shell fragment measuring 5 x 8 mm. in the left posterior fossa approximately 1.5 cm. from the midline. (See Figure 1.) Due to further possible operative damage in the presence of already irreversible neurological changes, removal of the shell fragment was not deemed advisable. Little rehabilitation was possible as his diffuse cerebellar signs obviated further useful military service.

Dysphasia (N-32)

The following types of dysphasia were encountered during this study:

Motor dysphasia	25[1]
Amnesic dysphasia	3
Mixed dysphasia	1
Total aphasia	1
Sensory dysphasia	1[2]

One additional case showed an acoustic verbal agnosia, visual verbal agnosia, alexia and agraphia.

Eighteen resulted from cranio-cerebral trauma. Seven were due to cerebrovascular disease, and six were seen in association with brain tumor, four

[1]After the expressive manifestations had improved in two patients, the main characteristics were those of amnesic dysphasia. Five, in addition, showed agraphia and alexia, and one later presented a typical amnesic dysphasia.

[2]This case presented all the features of Wernicke's aphasia. Following subsidence of the initial pathology (cerebral contusion and laceration following an acute head injury) these symptoms disappeared and a typical amnesic dysphasia became apparent.

primary and two metastatic. One developed following an episode of acute meningo-encephalitis.

Eleven of these patients were wounded in action but none was evacuated primarily for speech disturbance. Nine had cranial defects from previous compound, depressed fractures which had been debrided at the time of the original injuries. In addition to the bony defect and language involvement, three had brain abscesses (one with convulsions, another with right hemiplegia and severe mental deterioration), one had a right hemiparesis, two had multiple fractures of the extremities, one had a post-operative ventral hernia following a laparotomy with removal of shell fragments.

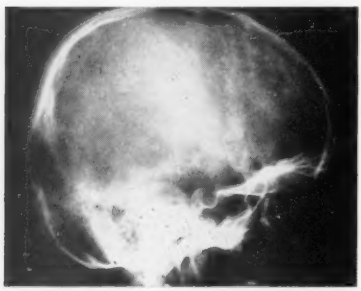

FIGURE 1. Case 1: Left lateral X-ray of skull showing shell fragment in left posterior fossa.

One showed a severe post-traumatic syndrome and another had a left ulnar nerve paralysis. In these cases examinations were not possible until several months post trauma, as serious injuries usually obviated early evacuation. During this time considerable spontaneous improvement in speech had occurred and simple conversation was possible in all patients with but one exception. Medical records received with the patient and speech tests employed here were usually sufficient to determine the original and present language impairment.

It was possible to spend more time with members of this group due to longer periods of hospitalization necessary to rectify associated disabilities from the previous trauma. Definite improvement was noted in many instances following speech training. It was occasionally necessary to change the handedness due to pathological changes in the major hemisphere. Rehabilitation was not possible in the one case of total aphasia. His original injury was due to a severe gutter fracture through the left temporal, parietal and squamous portion of the occipital (left) bones with considerable cortical contusion and laceration. He later developed an extensive brain abscess, generalized cortical atrophy and marked mental deterioration. No attempt was made to rehabilitate the primary or metastatic brain tumor cases due to the nature of the pathological process unless complete extirpation had been accomplished. Unfortunately, it was not possible to follow each case to its ultimate termination, which would have been desirable, as maximum improvement was usually obtained from other disabilities and hence disposition made before this phase was reached. The speech disturbance alone usually did not preclude return to duty at any time.

Many of these patients represented very interesting problems in the field of dysphasia. Detailed findings in this respect, however, are beyond the scope of this presentation and will form the basis of a later communication.

Stuttering (N-24)

In eleven cases, stuttering was felt to have a marked emotional basis; this, together with other clinical manifestations, led to diagnoses of psychoneurosis. The total manifestations were so severe in two of this group that evacuation from an overseas theater was necessary after repeated exposure to battle conditions.

Three additional men saw considerable action and sustained peripheral nerve injuries for which they were returned for further observation and treatment. There was no apparent ef-

fect on their stuttering. Two more sustained head injuries in this country with marked accentuation of their speech difficulties which was felt to be due to emotional shock incident to trauma. One patient stuttered only for 2 to 3 days following generalized convulsions. Another had associated epilepsy. One interesting patient not included in this group developed stuttering as a secondary manifestation in his attempts to obviate a very evident motor dysphasia. Early symptoms of a cerebellar tumor were present in another case, which were apparently co-incidental. No apparent cause or association with other conditions was present in the remaining men. Seven electroencephalograms were available, two only in presence of stuttering alone and these were negative. The other five showed changes which could be attributed to other causes: two epilepsy, two head injuries and one tumor suspect.

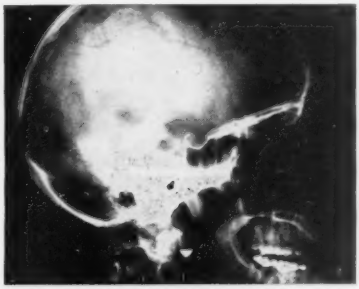

FIGURE 2. Case 2: Right lateral X-ray of skull with shell fragment lodged anterior and to the right of the first cervical vertebra.

Rehabilitation was directed along the lines of the individual problem present, rather than adhering to one teaching method alone in attempting to solve all stuttering disabilities. It was felt important for the stutterer to gain an insight into his language difficulties to serve as a foundation, as many of this type of case remained in the hospital for only short periods of time as previously indicated. Early improvement was often seen in this group even after limited instruction, but it is recognized that continued teaching is often necessary for long-term results.

Dysphonia (N-12)

Four presented typical symptoms of psychoneurosis in addition to their 'hysterical aphonia.' Improvement was noted following psychotherapy. One had a total laryngectomy for carcinoma involving the right vocal cord and anterior commissure. Patient could not use an artificial larynx so esophageal speech was instituted with improvement. Another case had a carcinoma involving the posterior surface of the right aryepiglottic fold. Operation resulted in improvement of his dysphonia. Another patient had a carcinoma of the lung with mediastinal and laryngeal extension. Three men showed a chronic laryngitis and were given palliative therapy with vocal rest, whispering, etc., with improvement. Two very interesting and similar maxillo-facial injuries were seen with multiple cranial nerve involvement. One will now be reported in greater detail.

Case 2:

Mode of Injury. Patient is a 24-year-old soldier who was injured by shell fragments in enemy action on June 15, 1944. Point of entry was over the right malar bone with lodging just anterior and to the right of the atlas (Figure 2). He was unconscious for 12 hours and then exhibited left hemiplegia, dysphonia, dysarthria and dysphagia. Wound was debrided and he was then evacuated for further treatment.

Associated Injuries. Compound, comminuted fracture of the right malar bone with extension into the right antrum.

Course and Residuals. On examination, patient showed marked dysphonia. Voice was rather weak and of high pitch. Hoarseness was very evident with a tendency toward nasality. Articulation was also involved, particularly the lingua-rugals and lingua-velars. Multiple cranial nerve involvement was seen: left motor fifth, left central seventh (Figure 3), gag reflex absent, paralysis of soft palate on right and also of right vocal cord. Bilateral accessory involvement (sternomastoid, right; trapezius, left), and right twelfth (Figure 4).

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There was a residual weakness and hypesthesia of the left side with hyperactive reflexes and equivocal Babinski. Right Horner's syndrome was also present.

Electroencephalogram on August 18, 1944, showed the dominant rhythm to be 10.5 per second. There was a moderate amount of 4-6 per second slow wave activity from all leads but most marked in the right parietal, temporal and occipital regions with a fairly persistent difference in the rhythm and amplitude recorded from these areas on the right as compared with the left. Pneumoencephalogram was performed on August 24, 1944. The ventricular system showed no deformity, dilatation or displacement. There was slight increase in subarachnoid markings over the right frontal region. Patient showed improvement in dysarthria but little from the standpoint of dysphonia.

FIGURE 3. Case 2: There is a central paralysis of the left facial nerve and a Horner's syndrome on the right.

FIGURE 4. Case 2: There is a paralysis of the right hypoglossal nerve. Scar representing point of entry of the shell fragment is seen over the right malar area.

Cleft Palate and Dyslalia (N-5)

Two patients were observed with lisping and three others with cleft palate in association with hare lip. Rehabilitation for a short time resulted in some improvement.

SUMMARY

IT IS EVIDENT from this study that the incidence of speech disorders encountered during army service is somewhat higher than indicated by previous reports. This becomes more apparent when one considers the many hospitals caring for army personnel throughout the world. A large percentage (86.7 per cent) was due to the ordinary causes commonly encountered in civilian practice as the statistics have demonstrated. Sixteen of the cases (13.3 per cent) were wounded in action with associated speech involvement. However, it must be emphasized that evacuation for further observation and treatment was made on the basis of other neurological and physical deficits rather than on the basis of language disturbance alone. Ordinary conversation was possible with but one exception, which has been recorded elsewhere. Further rehabilitation resulted in additional improvement in most of the other cases. However, lack of time and short periods of hospitalization often prevented maximum anticipated advancement. It must also be recognized that early return to duty is necessary in

times of national emergency when ordinarily disqualifying conditions are rectified, and in spite of some residual speech deficit which would not be incompatible with further useful service. If patient is discharged to Veterans' Administration for permanent physical disability, further speech correction, if indicated, should be included as a part of a long-term rehabilitation program.

Short courses in speech re-education will undoubtedly be of value in certain cases such as stuttering, sigmatism, etc. However, considerable training will be necessary for maximum improvement in many of the more severe injuries sustained in combat. This need will be more evident in the future, due to the increasing numbers of casualties now being received.

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'THE FORGOTTEN MAN'

Of 14,000 blind children of school age, 10,000 receive some occupational training. Of 18,000 deaf children of school age, 15,000 are being prepared to find a useful place for themselves. National benefit dances are given for the crippled, seals are sold for those suffering from tuberculosis, and many fraternal and civic organizations sponsor funds which care for some of the blind and deaf . . . But . . . there is a group of afflicted persons numbering over six times the total number of blind, deaf, crippled, and mentally defective combined. This group consists of those who suffer from speech defects . . . Of the one and a half million speech defectives of school age, less than 60,000 are receiving even perfunctory remedial treatment, no vocational specialization is opened to them, and little prevention is being taught . . . The White House Conference of 1930 provided the approximate yearly cost of reeducating each handicapped child: blind, $500; deaf, $264; crippled, $500; feeble-minded, $300; speech defective, $10. The actual cost of providing retraining for a speech-defective child is only $10 annually, almost a negligible percentage of the amount expended upon other handicapped children.

CHARLES VAN RIPER, *Speech Correction Principles and Methods* (Prentice-Hall, 1939)

Improving the Speech of the Cleft Palate Child

Charlotte G. Wells*

A RECENT experimental program in speech training for post-operative cleft palate children, conducted during two successive summers, has provided the opportunity for study of teaching techniques especially adapted to the needs of the cleft palate child. The evaluation of these teaching methods was only one of several considerations in the two-year experiment, but many new and different drills were used in speech training, while others well known to the speech correctionist were revised to suit the group and the individual child.

The program also made evident the need for continuing speech training after the child had left the clinic and returned to his home. Follow-up work subsequent to the two sessions unified the efforts of home, school and community in giving continued and continuous assistance to the child, and became an essential part of the entire program.

A description of the organization and operation of the first of these speech training centers has been published by the Wisconsin State Department of Public Instruction (**2**). The present discussion will be limited to a consideration of the teaching techniques used and the parent- and teacher-education program developed from the need for continued speech training after the close of the summer clinics.

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The Training Centers

DURING the summers of 1943 and 1944, speech training centers for post-operative cleft palate children were held in Madison, Wisconsin, under the joint sponsorship of the Bureau for Handicapped Children of the Wisconsin State Department of Public Instruction, the Wisconsin Orthopedic Hospital, and the speech clinic of the University of Wisconsin. Children were brought from all parts of the state to Madison, housed in foster homes, and sent each day to classrooms in the Wisconsin Orthopedic Hospital to receive special speech training. The project represented the first attempt at such a state-sponsored program in continental United States, although a similar plan was in operation in Hawaii for several years and special programs for cleft palate children have been carried on at many clinics, most recently those of the University of Michigan and Pennsylvania State College (**1**).

The speech training centers were experimental in a multiple sense. Not only did they provide an opportunity for consideration of teaching methods and follow-up plans, but they also made possible the evaluation of a short-term summer training program as a partial answer to the need for extended speech correction service in Wisconsin. In addition, they represented an attempt to find the advantages and disadvantages of intensive short-term speech training for children with serious speech handicaps and to encourage combined services for children, with hospital, social agency, plastic surgeon, psychologist, orthodontist, foster mother, parents,

teacher, medical social worker and speech correctionist working together to aid the child.

The Pupils

Forty-eight post-operative cleft palate children attended the two speech training centers. Four pupils who were enrolled in 1943 returned the second year for further work. The distribution of the enrollment by age and sex is indicated in Table 1.

TABLE 1. Distributions of age and sex of cleft palate children in two summer clinics.

Age	1943 Boys	1943 Girls	1943 Total	1944 Boys	1944 Girls	1944 Total	1943-44 Total
3	2	1	3	0	0	0	3
4	0	1	1	3	1	4	5
5	0	0	0	3	3	6	6
6	2	1	3	0	2	2	5
7	2	2	4	3	2	5	9
8	0	2	2	2	0	2	4
9	1	0	1	1	1	2	3
10	0	0	0	0	0	0	0
11	4	1	5	1	0	1	6
12	1	2	3	2	2	4	7
13	1	0	1	0	1	1	2
14	1	0	1	0	0	0	1
15	0	0	0	1	0	1	1
	14	10	24	16	12	28*	52*

Average age	1943	1944	1943-44
Boys	8.9	7.6	8.25
Girls	7.8	7.6	7.7
Boys and girls	8.4	7.6	8.0

*These figures include four children who attended both sessions.

All of the children at the two training centers had cleft palates that had been surgically repaired. Thirty-seven also had surgically-repaired cleft lips. Twenty-three had hearing that was within normal limits for speech; the others showed hearing losses from slight to severe. Intelligence, as measured by Binet and Cornell-Coxe tests, ranged from very low (I.Q. 48) to superior (I.Q. 132).

Thirty-nine Wisconsin towns and cities were represented in the two groups. Boarding homes were found for 42 of the children. Five were Madison residents. One was already in a Madison boarding home.

Fifteen of those attending had received speech training previous to enrollment at the speech training center, 12 having been given training by the schools of the cities in which they lived and three having attended the University of Wisconsin speech clinic.

The Schedule

Classes were held from nine to three five days a week and from nine to noon on Saturday. The teaching day was organized with the following aims:

1. To provide frequent short intervals of speech drill.
2. To intersperse these drill periods with recreational activities, rest periods and a lunch hour.
3. To divide the class into small groups on the bases of speech problems, intelligence, age level and special interests.
4. To increase the length of the drill period and the difficulty of the work in accord with the progress made.
5. To provide for division of the enrollment into work and play groups to correspond to the schedules of the full-time and part-time teachers.
6. To conform to the daily routine of the Wisconsin Orthopedic Hospital.

The first general schedule made provision for change of activity every twenty minutes. This time division was very flexible and was altered many

times during the 1943 session. For the summer of 1944, the divisions were thirty minutes in length and the daily schedule was as follows:

9:00	Roll, inspection, drill in one large group
9:30	Work in small groups
10:00	Individual work
10:30	Outdoor recreation
11:00	Group drill, blowing, preparation for lunch, music, rhythms
11:30	Lunch
12:15	Rest hour, quiet indoor recreation, coloring, conversation
1:00	Group work
1:30	Individual work
2:00	Outdoor recreation
2:30	Review, group drill on sounds in words and sentences
3:00	Dismissal

The session in 1943 lasted for six weeks; in 1944, the period was extended to eight weeks and was concurrent with the summer session of the University of Wisconsin.

The entire schedule of the speech training center was focused on the child as an individual, as a whole personality, as a future citizen, and as a user of speech in everyday life. The experiences of living in a foster home, of being in a different city, of meeting and playing with other children, of learning good eating habits, of seeing new things and new places, of finding that others had similar and often more serious handicaps in speech and in adjustment were probably as valuable to the children as was the actual speech training they received.

Teaching Methods

The primary purpose of the training centers was the speech rehabilitation of the children who attended. Games, music, reading, dramatizations, picnics, visits to parks, zoos, museums and radio stations were part of the general schedule, but the recurring emphasis was on better speech. Adequate self-expression was the goal for each of the children and each was encouraged to recognize the nature of good speech and its value to him.

Drill work and practice in the use of newly-acquired skills in everyday speaking and reading were woven together in the daily pattern. A sound correctly produced was used in phrases and sentences, and the child was reminded to use it in his playground conversation and at his foster home as well as in class work.

There were four general objectives in group and individual drill. Not all of these were essential to each child, but all were considered in each plan of work. The first aim was control of the nasopharyngeal port. Secondly, the pupils were taught to produce and to use correctly the sounds of American speech. Ear training was provided daily, and the fourth main objective was the incorporation of newly-acquired skills in careful speech and in conversation. These four main lines of procedure were not independent, but over-lapped in many ways. However, for convenience in discussion, they may be considered separately here.

Nasopharyngeal port closure and control. In presenting the idea of nasopharyngeal port closure and control to the very young children, no attempt was made to describe or consider the structures in any detail. The older children learned to identify and to understand, in general, the nose, throat and mouth structures and their functions in speech. The nasopharyngeal port was renamed 'the gate' so that the children could talk about it more easily.

The following are some of the drills used to obtain velar closure and control:

Drills using mirrors:

Looking into a mirror, observe the roof of the mouth. The teacher touches the soft palate lightly with a tongue blade.

Run the tongue from the gum ridge back to the soft palate. Watch the tongue position with the aid of a mirror. Look at the soft palate as the tongue touches it.

With the mouth wide open, think of the sound *ah*. Do not say the sound, but think it clearly. Watch the palate position in a mirror during this drill. Looking into a mirror, open and close 'the gate'. Then, not using the mirror, have someone else watch and report whether or not 'the gate' moves.

Drills using paper:

Take a strip of paper and bend it in the middle. Straighten out the paper by blowing on it. (Many variations of paper blowing may be used. One group drill involves blowing papers of different colors in time to music, children holding blue strips blowing on one phrase, those holding red strips on the next, and so on.)

Use a long table as a race track, balls of paper or ping pong balls as horses.

Place a small square of paper on the palm of the hand or on a mirror. Hold the paper in place by blowing while the mirror or hand is turned upside down over the head.

Make windmills out of squares of paper. Fasten them to pencil erasers with pins and blow on them to make them whirl. (These windmills may also be blown in time to music.)

Mark wedge-shaped divisions on a round table with chalk. Blow paper balls into the 'bullseye' drawn in the center. Pretend that the paper is a boat which must reach some sailors marooned on the center 'island'.

Make 'huffer-puffers' out of long tubular strips of paper. Roll the tubes, leaving a short end as a mouthpiece. Straighten out the curled-up paper by blowing into the mouthpiece.

Hold a piece of paper against the wall or blackboard by blowing on it.

Drills using straws:

Blow through straws to push papers across the desk, to make bubbles in a glass of water, to cool the hands, to dry imaginary nail-polish, to keep time to music.

Use straws as musical instruments, singing the sound *oo* through the straws.

Drills using other simple materials:

Take a piece of rubber tubing about a foot long. Place one end of the tubing at one nostril, the other end at the ear. Hum gently and listen to the sound as it comes to the ear through the nasal passage and the tube. Then say *ah* and note whether or not the sound comes through the tube to the ear. If the 'gate' is closed, no sound will be heard directly through the tube on *ah*.

Blow a ping pong ball from one end to the other of the eraser tray on the blackboard.

Use empty spools as soap-bubble pipes. (They are easily cleaned, inexpensive, and provide a flat surface against which the lips may be pressed.)

Other drills:

Repeat *ah* several times, taking in a quick breath through the nose after each *ah*. Keep the mouth open.

Take in a breath through the nose and blow it out between pursed lips.

Take in a breath through the mouth. Close the mouth and blow the air out through the nose. Breathe in through the mouth. Pucker the lips and blow the air out. (Each child was given a straw and instructed to close the lips around it. The straw was then withdrawn and the lips held in the closely-rounded position.)

Puff out the cheeks and hold the lips together. Push first on one cheek then on the other with the forefinger. Do not let any air come out of the nose or between the lips. (Have the child push on only one cheek at a time and watch carefully to prevent undue or too-sudden pressure.)

Learn to whistle on an indrawn breath. Then practice whistling on an outgoing breath. Outline the hand and fingers with breath blown from between rounded lips Try to outline the entire hand with one breath.

Listen to a story involving wind, boats, a huffing wolf, or trees and help the storyteller by blowing each time the story needs a 'sound effect'. (These stories may be original or may be adapted from such familiar tales as 'The North Wind and the Sun' and 'The Three Little Pigs'.)

Yawn widely and stretch the mouth.

The production and use of speech sounds. Sounds were presented in Poole's developmental sequence, the bilabials being taught first, then the more difficult sounds. Each was considered in terms of position, movement and direction. Vowel sounds were used in all the drill on consonants, and constant attention was given to the distinction between nasal and non-nasal sounds. Individual differences made for great variation in this work, but, in general, the child learned to use each American speech sound first in isolation, then in nonsense combinations, then in words, phrases and sentences. General drills were used frequently to exercise the lips, jaw, tongue and palate.

After the child had learned to produce a certain sound, the following drills, and others, were used:

Select a word to serve as 'key word' for the sound, such as *ball* for [b], *go* for [g], *dive* for [d]. Be sure that the sound is correctly made when it is used in the 'key word'.

Think of a pantomime activity that will help in remembering the key word. Bounce an imaginary ball; pretend to be a policeman telling cars to go ahead; let one forefinger be a diver and the other be a diving board. Combine sound, word and activity.

A picture or flash-card is held up. Various sounds in the word are called out. The sounds are combined to form the word and it is used in an original sentence.

Play 'Echo across the river'. Groups line up on the two sides of a strip of floor or ground designated as the river. Each member of one group calls a sound across the river to someone on the other side. If the 'echo' answers using the sound correctly, he may cross the river to be with his partner.

Play 'Move-away'. Pupils sit in a row of chairs two or three feet in front of the teacher. Each correct repetition of the sound given by the teacher permits the player to move back two feet.

Play 'Tank corps'. Chairs one behind the other represent the tanks. The driver of each holds his place in line if he can use the sound correctly in a word. If he misses, he goes to the end of the line.

Two or three groups compete in a 'cheering contest'. Each group has a leader. The 'cheers' are made up of combinations of sounds being practiced.

Make a basket of the hands and hold it in front of the mouth. Make each sound (except [m], [n], and [ŋ]) go out of the mouth and into the basket. Put whole words and sentences into the basket, too.

All of these sound drills were used in ear training as well as in obtaining accurate sound formation and combination.

Ear training. Although practically every activity in the speech training program may be used for ear training, certain specific drills may be employed, with individuals or with the group, to promote careful listening and discrimination. Music, rhythm work and singing are particularly helpful in developing the ability to listen and to imitate sounds and tones.

The following are some of the drills used for ear training with the cleft palate children at the speech training centers:

One child says a word or sound, or uses that word or sound in a sentence. He may try to say it correctly or may make an intentional error. The others correct him if he is wrong, show approval by nodding or clapping if he is right.

The teacher holds up a picture. She says the word or gives the sound several times. Each time she says it correctly, the pupil raises his right hand. When she makes a mistake, the pupil raises his left hand.

A puppet pussy-cat, operated by the teacher or one of the pupils, visits each member of the group. He is called 'Copy-cat'. The child attempts to repeat the sound, word, or sentence exactly as the 'copy-cat' has said it. Other members of the group judge the exactness of his response.

All the drills learned are reviewed in a whisper. The children must watch and listen carefully if they are to follow the sequence. (This method of presenting drills should be used only with familiar material and under favorable conditions of lighting and seating. Its purpose is to encourage observation, not to teach lip reading.)

A sound is described carefully and accurately. The child then produces the sound. Simple words may be presented in the same way.

One child closes his eyes. The others take turns counting up to five in disguised voices. The listener tries to guess the speaker.

The group hears part of a melody hummed or played on the piano. When the music stops, the group goes on with the song.

Rounds, such as 'Three Blind Mice', 'Whose Dog Art Thou', and 'Row Your Boat', are sung by three groups, each with a leader.

A musical selection is played on the piano. When the music is loud, the children clap in time to it. When the music is soft, the group keeps time by repeating a speech sound. (This is particularly useful for drill on plosives.)

Songs, marching, rhythm games and simple group dances provide recreation and ear training at the same time. One member of the group tells a story. He selects a certain sound for the group to observe. When he makes a mistake, anyone who notices the error 'swats that mistake' by clapping his hands sharply. The speaker corrects his error or asks what mistake he made.

The use of newly-acquired speech skills. From the beginning of each of the training center sessions, the children were encouraged to use the best speech of which they were capable. However, the carry-over of new habits from drill to everyday speech was a difficult task for most of the pupils.

To promote the use of good speech, special times of the day were set aside as 'I remember' periods. Sometimes each child was given a slip of paper on which was printed the one sound he was to remember to use correctly. At other times, the entire group concentrated on the use of a particular sound during informal conversation. Again, such phrases as 'Good morn-

ing', 'How are you', 'May I have . . .', and others frequently used were practiced in dramatized situations.

The older children made notebooks in which each listed words containing sounds he needed to practice. The words were used in sentences, which were also written in the notebooks. This same group made a chart showing speech sounds in initial, medial, and final positions. The pictures for this chart were cut from an old mail-order catalogue. The discussions about the selection of pictures encouraged the use of sounds in words and sentences.

Conversation formed an essential part of at least one daily practice period. Topics for discussion were presented by members of the group.

Dramatizations of familiar stories provided opportunity for further practice in better speech. The lines spoken by the characters were not memorized, but changed from rehearsal to rehearsal as the cast followed the general outline of the story.

Simple narratives were written, one for each age level from five to eight. The first was told in words containing only [p], [b], [m], [t], [d], [n], [k], [g], [ɔ], [h], [w], and the vowel sounds. The second story included the above sounds, plus [f]. In the third, [v], [ð], [ʒ], [ʃ], and [l] were added. These stories made possible the quick checking of sounds at the different age levels and also provided material for dramatization.

During the final week of each session, special emphasis was given to the use of careful speech. The motto, 'We will remember to speak slowly and clearly,' was the theme of the week, and the children told it over and over to their parents as fathers and mothers came to take them home.

The Follow-Up Program

Reports of achievement and of further needs were sent, at the close of each training center, to parents and schools, and the importance of further assistance for the child was made clear to parents who visited the training centers during the final week of each session. Notebooks were provided for parents when they came to visit the clinic. They were urged to take notes on procedures, drills and the special needs of their children. Classes for parents were conducted during recess times and at the close of the school day, with the children present to demonstrate the points made.

However, not all parents were able to visit Madison and discuss with the director the program to be followed at home and at school to assure the retention of good speech habits. If the program were to be more nearly complete, the further need for service to these speech-handicapped children should be met.

To meet that need, the State Department of Public Instruction engaged one of the training center teachers to travel over the state to visit the homes, schools and communities from which the children had come. Her task was to discuss with parents and teachers a plan that would help each child to retain what he had learned and to continue his improvement in speech.

The visits served several purposes. First, they helped remind the child that he should continue the work he had been doing at the training center. Secondly, the follow-up call made it possible for the visitor to check on the child's speech and to re-evaluate the teaching program in terms of retention of learning. Also, the discussions with parents, teachers and community social workers encouraged further unity of effort in securing additional surgical, educational and vocational assistance for the child. In addition, the conferences enabled the speech correctionist to plan with parents and teachers the best procedure to use in

providing constant speech training for the child.[1]

Conclusion

THE speech training center is only one experimental phase in the search for the best program for speech-handicapped children in Wisconsin. It has not been a complete solution of the problem; it has been an instructive experiment with special types of speech training.

From experiences gained in two summers of work have come many new plans. The probability of another session in 1945 poses further problems in limiting enrollment, in investigating other teaching methods, in following up the summer work with a more intensive winter program, in encouraging further state services to aid the child, and in considering again the important questions: 'What else needs to be done for these and other speech-handicapped children, and how can we do it most effectively?'

[1] A bulletin, "A Teacher-Parent Guide to Speech Training for Cleft Palate Children," published in November, 1944, by the Department of Public Instruction, State of Wisconsin, was made available to parents and teachers.

References

1. Backus, Ollie L., and Dunn, Harriet M. Experiments in the synthesis of clinical methods into a program of rehabilitation. *J. Speech Disorders*, 1944, **9**, 1-17.
2. Dept. of Public Instr., State of Wisconsin. *Speech Therapy, a New Chapter in Wisconsin's Care for Handicapped Children.* Madison, Jan., 1944.

HAND ME WHAT YOU MEAN!

With their characteristic love of classification and indexing, the Indians [India] divide up the vocabulary of gesture. Thus they recognize three chief kinds of gesture—bodily, vocal and ornamental. Bodily gestures are divisible into movements of the limbs, of the body, and of the features. Of head movements nine are detectable, though some authorities recognize twenty-four. Even the glances are made to fall into eight classes (forty-four classes according to some writers). There are six recognizable movements of the brows, and four of the neck. Twelve 'lives' or hand-movements are demonstrable. Other authorities relegate manual gestures into single and combined movements, of which there are twenty-eight of the former and twenty-four of the latter. There are eleven hand movements indicative of relationship. Various gestures refer to the nature and deeds of the gods. There are gestures denoting the four castes. Furthermore hand movements are known which denote famous emperors, the lords of the earth, the seven oceans, well-known rivers, the upper and lower worlds, various trees, animals, birds and fishes.

MacDonald Critchley, *The Language of Gesture* (Longmans, Green, 1939)

A Semantic Study of Identification of Speech Defects

Ernest H. Henrikson*

DURING an extended period of speech correction work in the schools of Iowa, the experimenter attempted to find out what a large and representative number of teachers knew about speech defects, what training in speech correction they had received, and which speech defects they thought they could recognize. This last was studied by presenting each teacher with a questionnaire which contained, among other things, a list of names of eighteen speech defects. Each teacher was asked to check the names of those defects she thought she would be able to recognize. When data from this questionnaire were compiled, the question arose as to just what this check meant. What, for example, does it mean if one person checks that he recognizes stuttering while another person does not check recognition of this defect?

Problem

LOOKED at superficially, this problem may seem to be a relatively simple one. That is, it might seem that if a person says (by checking, word of mouth, etc.) that he recognizes a defect, he recognizes it. The opposite condition might seem to obtain if he says he does not recognize it. Actually, however, the problem may not be nearly so simple as it seems to be. All the person is checking is a label. What does the label mean to him? How adequately can he elaborate on his idea of what the label means in a way which would give evidence that he has a fairly accurate idea of what the label is presumed to represent? Does the fact that a person checks lisping, for example, as among the defects he can recognize mean that he can define lisping in a relatively satisfactory way? Even this includes no direct contact with the defect. The level of consideration has been that of words about the defect. How do these words relate to the recognition of the defect when it is heard in one or more of its numerous forms?

Thus it becomes evident that a variety of problems are included when one speaks about 'recognizing' a speech defect. Understanding at least some of the ramifications of these problems becomes imperative if clear thought and communication about speech defects is to be achieved.

Procedure

TO PROBE into certain phases of these problems, the experimenter carried out the following procedure with 26 students enrolled in a class in speech correction. This was done at the beginning of the course, so results do not reflect effects of the course:

1. Each student was asked to check the questionnaire mentioned above, indicating whether he recognized each of the following eighteen speech defects: stuttering, lisping, nasal speech, denasal speech, sound substitution, sound omission, sound distortion, sound addition, monotonous speech, baby talk, breathy speech, harsh speech, muffled speech, high-pitched speech, too-loud speech, too-weak speech, too-rapid rate and too-slow rate.

2. At the same meeting of the class, but after handing in the questionnaire, each student was asked to write a definition of each of the speech defects listed above. This was done without the help of reference material. The experimenter graded

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these definitions on the basis of 10 points for each defect 'correctly defined.' *Correctly defined* was interpreted liberally, with the experimenter attempting at all times to allow full credit for definitions he thought would be in agreement with the viewpoint of some 'experts,' even though he himself might not believe them to be wholly acceptable.

3. The experimenter and a colleague (Mr. Herbert V. Hake, Professor of Speech at Iowa State Teachers College) presented examples of each of the speech defects by reading selected material eighteen times

Results

Table 1. Comparison of definition scores of persons checking recognition of a defect with the definition scores of persons not checking recognition.

Defect	*Group Checking Recognition*		*Group Not Checking Recognition*	
	Number	*Av. Score*	*Number*	*Av. Score*
1. Stuttering	25	9.5	1	10
2. Lisping	24	6.9	2	7.5
3. Nasal speech	16	7.4	10	8.6
4. Denasal speech	4	10	22	4.7
5. Sound substitution	22	9.4	4	6.3
6. Sound omission	20	9	6	8.3
7. Sound distortion	2	8	24	4.8
8. Sound addition	11	9	15	9
9. Monotonous speech	25	10	1	10
10. Baby talk	23	8.9	3	10
11. Breathy speech	13	7.2	13	7.7
12. Harsh speech	16	8.6	10	7.8
13. Muffled speech	13	9.1	13	8.7
14. High-pitched speech	24	7.9	2	10
15. Too-loud speech	21	9.5	5	8
16. Too-weak speech	23	9.1	3	8.7
17. Too-rapid speech	23	9.7	3	10
18. Too-slow speech	21	9.9	5	9.2
	326 (70%)	8.9 (Av.)	142 (30%)	7.3 (Av.)

Table 2. Comparison of definition scores with recognition of oral presentations of each defect.

Defect	*Recognized Both Presentations*		*Recognized One Presentation*		*Recognized Neither Presentation*	
	Number	*Av. Score*	*Number*	*Av. Score*	*Number*	*Av. Score*
1. Stuttering	23	9.5	1	10	2	10
2. Lisping	22	7.5	2	5	2	3
3. Nasal speech	15	8	7	6.1	4	10
4. Denasal speech	10	3.8	5	6	11	6.8
5. Sound substitution	2	8.5	15	9.7	9	7.8
6. Sound omission	15	8.7	8	10	3	6.7
7. Sound distortion	0	0	14	5.3	12	4.7
8. Sound addition	12	9.1	10	10	4	8.8
9. Monotonous speech	20	10	6	10	0	0
10. Baby talk	2	10	15	8.5	9	9.5
11. Breathy speech	12	7.8	11	6.7	3	8.6
12. Harsh speech	13	8	9	9.2	4	7
13. Muffled speech	19	8.9	4	8.2	3	10
14. High-pitched speech	16	7.5	7	10	3	6.7
15. Too-loud speech	23	9	1	10	2	10
16. Too-weak speech	22	8.9	2	10	2	10
17. Too-rapid speech	22	9.7	2	10	2	10
18. Too-slow speech	23	9.7	1	10	2	10
	271 (58%)	8.7 (Av.)	120 (26%)	8.3 (Av.)	77 (16%)	8.7 (Av.)

and simulating the defects in random order. Mr. Hake read 'Early every summer morning our barn is covered with brilliant red roses.' The experimenter read:

Mary had a little lamb,
Its fleece was white as snow,
And everywhere that Mary went
Her lamb was sure to go.

Each student indicated which of the eighteen defects he thought was demonstrated in each presentation. The experimenter listened to the presentations by Mr. Hake and recognized the intended defect in each of the eighteen cases, an indication that the intended defect actually was simulated. There was no check on the experimenter's oral presentation of the various defects. However, results from Mr. Hake's and the experimenter's presentations show no significant differences.

Conclusions

THIS study is in no sense conclusive, due to the relatively small number of persons involved, the limitations of language, etc. Some points are indicated, however. For example, although the average definition score for those who checked recognition of certain defects was higher than the average score for those who did not indicate recognition (8.9 and 7.3), this difference is not as great as might have been expected. The definition scores indicate clearly that recognition is not subject to a 'do-do not' division, but is a far more involved matter. This

Table 3. Comparison of statement of recognition with recognition of oral presentation of each defect.

Defect	*Checked Recognition*				*Did Not Check Recognition*			
Recognized	*2*	*1*	*0*	*Total*	*2*	*1*	*0*	*Total*
1. Stuttering	23	1	1	25	0	0	1	1
2. Lisping	20	2	2	24	2	0	0	2
3. Nasal speech	10	4	2	16	5	3	2	10
4. Denasal speech	1	1	2	4	9	4	9	22
5. Sound substitution	2	12	8	22	0	3	1	4
6. Sound omission	10	7	3	20	5	1	0	6
7. Sound distortion	0	1	1	2	0	13	11	24
8. Sound addition	6	4	1	11	6	6	3	15
9. Monotonous speech	19	6	0	25	1	0	0	1
10. Baby talk	2	14	7	23	0	1	2	3
11. Breathy speech	5	8	0	13	7	3	3	13
12. Harsh speech	7	7	2	16	6	2	2	10
13. Muffled speech	12	1	0	13	7	3	3	13
14. High-pitched speech	16	5	3	24	0	2	0	2
15. Too-loud speech	19	1	1	21	4	0	1	5
16. Too-weak speech	20	2	1	23	2	0	1	3
17. Too-rapid speech	19	2	2	23	3	0	0	3
18. Too-slow speech	18	1	2	21	5	0	0	5
	209 (64%)	79 (24%)	38 (12%)	326 (100%)	62 (44%)	41 (29%)	39 (27%)	142 (100%)

Table 4. Rank difference correlations between number of defects which judges claimed they were able to recognize, the number they were able to define, and the number they were able to recognize when they observed them.

	No. They Were Able to Define		*No. They Were Able to Recognize (Observation)*	
No. of defects they were able to recognize (statement)	P	.073	P	—.178
	Est.r	.077	Est.r	—.186
	PE_r	.140	PE_r	.130
No. they were able to define			P	.231
			Est.r	.241
			PE_r	.130

is increasingly evident when a comparison is made between the definition score and recognition. Those who recognized the defect in both oral presentations had an average definition score of 8.7, and those who recognized the defect in one oral presentation had an average definition score of 8.3. Interestingly, however, the 77 instances in which neither oral presentation was recognized involved judges with an average definition score of 8.7, the same as that for those instances in which both oral presentations were recognized. Why this should be is not evident from this study, although the fact may not be as surprising as it appears. Other studies, such as that of Tuthill (**1**) have made it evident that even 'experts' do not necessarily agree very well on the appearance of a particular example of a speech defect. Further, the defect, such as stuttering, is not a definite thing, the same at all times in different persons or even in the same person. Thus a person might be able to present a relatively satisfactory verbal description of a defect and yet not think it was present in a given segment of a person's speech, even though someone else listening to the same speech would conclude the defect was present. This would hold true also in comparing a simple statement of recognition with recognition in actual speech.

Further complication is evident when a comparison is made between statement of recognition and recognition in oral presentation. This study indicates that there is a greater tendency for those who think they can recognize a defect to recognize it than for those who do not believe they can recognize the defect. Eighty-eight per cent of those checking belief of recognition did recognize one or both of the simulated presentations. But of those who checked they did not recognize the defect, 73 per cent actually recognized one or both of the oral presentations.

All these indications are strengthened when the small amount of correlation between pairs of the three measures is observed (Table 4). The low correlation between statement of recognition and definition (.077) and between statement of recognition and recognition (.241), plus the negative correlation between statement of recognition and ability to define (−.186), all point in the same direction as the average scores discussed above.

As stated earlier, the results of this study are not assumed to be conclusive. But they seem to indicate certain things, and the indications all point in the same direction. Recognition of speech defects may be considered on different levels: statement of recognition, verbal definition, auditory perception, etc. These levels tend to overlap but they do not coincide. Realization of this fact may stimulate further study of the actual relationship among these various aspects of recognition. Certainly this fact should cause us to avoid tendencies toward dogmatism, bickering and confusion in our thinking, talking and teaching 'about' speech defects.

Reference

1. Tuthill, C. E. A quantitative study of extensional meaning with special reference to *stuttering*. Ph.D. Thesis, Univ. Iowa, 1939.

Abstracts of Current Articles

Mary Huber, Editor*

ACKLESBERG, S. B. Vocabulary and mental deterioration in senile dementia. *J. Abnorm. Soc. Psychol.*, 1944, **39**, 393-406.

The general purpose of this investigation was to study the relationship between kinds of vocabulary functioning and senile dementia. In testing, all possible control of mental capacity, education, age, and background were maintained. The scores of the tests showed that there is a reliable, consistent, and progressive reduction in vocabulary associated with mental deterioration, the amount of the former going parallel with the degree of the latter. Results seem to indicate that vocabulary functioning is as closely related to mental deterioration as it is to development of intelligence and general mental functioning. *(Anne Fradkin, Brooklyn College.)*

BERGER, E. V. Speech reading lesson for victory gardeners. *Volta Review*, 1944, **46**, 519-520.

This article is concerned with lessons in lip reading for the hard of hearing. The subject material of the lesson deals with various aspects of gardening. Seed packets and pictures of vegetables are arranged on a large curtain to enable the subjects to know beforehand what the speaker is to say. The vocabulary of the teacher is limited to 850 words of Basic English. The pupil-teacher conversations are recorded verbatim. *(B. H. Simmons, Brooklyn College.)*

CLAREMONT, CLAUDE A. Normalization of the child-adult relationship. *Brit. J. of Educ. Psychol.*, 1944, **14**, 35-43.

Clinical evidence as to the sources of psychotic states points to a moment or time in childhood in which a false or twisted child-adult relationship is to blame. There must be some form of relationship, not twisted or strained, which could, accordingly, be described as normal. It is the purpose of this study to take one or two of the more obvious steps toward the definition of such a norm.

The nature of the concept is that no child is just a child; he is always a child plus an adult, and it is assumed that this relationship can be accepted as something actual. It ought to be considered not just conceptually but as actually present. Since no condition of affection can be as satisfactory as when the love-tie is mutual, this mutuality may be taken provisionally as the fundamental basis of the norm. The absence of strain, shock, disillusionment and jealousies goes with this basic normality; therefore, one of the signs of this normality is happiness. It is concluded that the mutual attachment has a biological significance between the child and the adult. The ultimate reason for the child's devotion to the adult is suggested to be obedience which is needed for his protection. Further, the mutual attachment fills the function of transmission of culture, of actual knowledge and skill from one generation to another. These forces are independent of period or civilization. In the contrast of the normal and the abnormal, three causes of the abnormal offered are non-mutuality, exploitation and mistaken beliefs of the adult mind. It is also concluded that the adult-child relationship has its place in science, that in the three spheres, the laboratory, the clinic, and the school, we have complementary sciences, each with limited objectives. It would seem to follow that information coming from any one of these sources has as much scientific legitimacy as if it came from either of the others.

In general, the scientific world is constructing, consciously or unconsciously, a concept of normality in the adult-child relationship. A recognition of errors implies the possibility of non-error; and the correction of errors outlines little by little the condition of their absence. Nearly all errors come from the intellect or are supported by intellect. Often there is involved, not a choice between evils, but a choice between one good and another good. Although many details remain to be filled in, a norm does exist; to know it more fully would be desirable, and to follow it fully would be a path to psychic health. If psychic ills cause more misery than physical ills, then understanding of the psychic ills must be the first step on the path to happiness. *(Margaret Lazenberry, Minnesota.)*

CRIDER, BLAKE. A battery of tests for the dominant eye. *J. of Gen. Psychol.*, 1944, **31**, 179-190.

These tests have been designed to reduce to a minimum varying influences such as distance, handedness, and intelligence. The standardized procedures for 7 measures of dominance require an optimum of 13 sightings. Techniques include (1) the ring test (held successively in each hand); (2) the card test (with central hole for peeping at pencil spot); (3) the box test (black and white strings at both ends to be aligned);

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(4) the cone test (subject looks at examiner's nose through a tube); (5) the opthoscope (subject finds his own mirrored eye at end of the tube); (6) the spot test (subject finds nose in a mirror with reflecting surface reduced to the size of a silver quarter); and (7) the mirror test (subject brings his nose within a nickel-sized ring outlined on a scratched mirror). A muscle test to determine convergence at points close to the eye is also employed; the diverging or nonfixating eye is the nondominant one.

This technique shows about 54 per cent right-eyed, 25 per cent left-eyed (stable behavior), and approximately 7 per cent each in the right-eyed tendency, left-eyed tendency and impartial tendency categories. A complete analytical record sheet is included. Material for the tests may be obtained from the C. H. Stoelting Company, Chicago, Illinois. *(Helen Stewart Harrison, Louisiana.)*

GUSTAVSON, C. G. A talisman and a convalescence. *Quart. J. Speech,* 1944, **30**, 465-471.

This article deals with the stuttering problem of a history instructor at Miami University. The author describes how, through long and patient experimentation, he discovered that his stuttering was not a problem by itself, but was a manifestation of his much greater problem of general shyness and introversion of personality. The word *talisman* has been applied to the practice of transferring to the left hand because it describes the effect of the transfer upon the author, not because he presumes to have the right, from a single case, to form any judgment of the theory of neural dominance. As a teacher Mr. Gustavson found that each specific speech situation is a separate unit dependent on the amount of self-consciousness in the situation. In conclusion the author emphasizes 'the role of the mind' in the causation and 'cure' of stuttering. *(Desly Garber, Brooklyn College.)*

HILDRETH, GERTRUDE. A school survey of eye-hand dominance. *J. Applied Psychol.,* 1945, **29**, 83-88.

Four tests of eye dominance, or sighting, three 'tests' of hand preference (use of scissors, writing, throwing) were administered to 101 boys and 90 girls from 5 to 11 years of age. The right-eyed children were more consistently right-eyed in the four eyedness tests than were the left-eyed children. It was rather surprising to find a substantial number of the *right*-eyed children writing with the *left* hand.

There was no clear cut or consistent developmental tendency from one age group to the next. Although a slight tendency toward decreasing left-handedness with age was found, no such decrease was shown for eye-dominance. Twenty-two cases, all seven years of age or older, were selected as reading disability cases. A total of 45 per cent or less than half of all reading disability cases showed mixed eye-hand dominance. The number of cases is too small to indicate reliably that these reading disability cases showed more tendency toward mixed dominance than the normally successful readers.

Although a somewhat larger proportion of mixed dominant cases had difficulty with reading than consistent dominant pupils, since fewer than half the mixed dominants were slow in learning to read, the conclusion must be drawn that mixed dominance is not a prevailing condition in reading disability, far less a dominant causal factor in the majority of disability cases. *(Wendell Johnson, University of Iowa.)*

HILL-YOUNG, EDNA. Better help for speech beginnings. *Amer. J. of Diseases of Children,* 1944, **68**, 250-252.

The author's purpose is to inform physicians of the importance of speech training for young children as early as ages one to three years so that physicians will avoid such statements as 'Don't worry, speech will come,' etc. She urges consideration of the home environmental factors which influence delayed speech; the effect on the child's later speech of poor habits early learned; the possibility of stuttering as a result of conditioning to stumbling speech; the importance of the motokinesthetic method in training correct sound production. Elementary steps in this method are discussed briefly. *(Katherine Thorn, Minnesota.)*

KELLAWAY, P. Transmission to the cochlea. *Amer. J. Psychol.,* 1945, **58**, 25-42.

The author presents an analysis of the mechanism responsible for the conduction of auditory stimuli and an interpretation of experimental evidence in the light of morphological observations.

Detailed anatomical data and measurements are first presented because many of the finer structural points are often overlooked. While it is possible to distinguish anatomically the several structures of the middle ear as independent units, they cannot be considered as functional units. Unit 1 is the tympanum and the malleus. The tympanic membrane is unsymmetrical in shape and tension, and due to its elastic suspension can move in several planes, but within the range of everyday auditory experiences, one plane predominates. In spite of the general asymmetry of this unit, the tympanum linearly transmits to the ossicular chain energy impinging upon it. Unit 2, the incus: the saddle shape of the incudostapedial joint is a possible source of asymmetry in the transmission of motion across the inner ear. Unit 3, the stapes: the axis of rotation for the stapes is located at its

infero-posterior pole, hence it does not have a piston action as has been assumed, but rocks on its hinge-like attachment. At high intensities there is a change in the axis of vibration. The function of the intra-aural muscles is a linked reflex of protective and corrective damping.

On the basis of anatomical observation and experimental data it appears that the ossicular chain is constructed symmetrically to conduct moderate forces applied to the tympanic membrane, but that the mechanism is slightly non-linear, with the result that it contributes to the formation of combination tones. This route is undoubtedly the preferential pathway for sound waves to reach the inner ear. When passage of vibration through the ossicles is rendered impossible by injury or disease, the aerial pathway becomes an accessory route of transmission to the cochlea. The average hearing loss, when the tympanic membrane, malleus, or incus is lacking, is about 30 db. at 20 cps. to 65 db. at 100 cps.; above this frequency the loss tapers off. Bone conduction, the alternate accessory pathway, involves both compression of the skull cavities and relative inertial movements of the ossicles. The compression factor probably operates at all except the highest frequencies and is most important in the lower ranges.

In summary the general belief that the system is asymmetrically balanced is concluded to be incorrect. It is found that the mechanism follows with considerable fidelity vibrational forces impressed upon it. The air-borne vibrations impinging on the round window are considered of little importance in hearing due to the relative immobility of the fenestra ovalis. The physical mechanisms responsible for the stimulation of the sense organ in bone conduction are found to consist of compression of the labyrinth and inertial movements of the ossicles relative to the skull. *(Margaret Lazenberry, Minnesota.)*

LANE, R. R. Suggestions for handling young stutterers. *Elem. Sch. J.*, 1944, **44**, 416-419.

Correction of primary stuttering may be accomplished mainly through prevention. The teacher or parent of the stuttering child may help him adjust to his environment regardless of his speech defect by avoiding any atmosphere of tension in the home or classroom, by helping him to increase his personality assets and lessen his personality liabilities. He should always be allowed to use his natural handedness, and should never be told to speak more slowly as long as he can be understood. The parent should also keep the child in good physical condition. *(Desly Garber, Brooklyn College.)*

MUSSEN, P. H., and ROGER, G. B. Attitudes toward cripples. *J. of Abnor. Soc. Psychol.*, 1944, **39**, 351-355.

The increasing demand for psychological counseling in rehabilitation work with war and civilian disabled makes the exploration of the social-psychological problems of cripples an urgent practical task as well as an opportunity for scientific discovery. The object of the investigation is to describe the attitudes which non-crippled college students express toward crippled persons. According to data obtained, a highly educated group of subjects believe that crippled persons tend to have behavior characteristics that differentiate them from non-crippled persons in both favorable and unfavorable ways. The degree of agreement as to the characteristics of cripples varies greatly with the behavior being rated. The data give no support to the frequently stated opinion that cripples are, in general, regarded unfavorably. The findings must, however, be interpreted in the light of the fact that the experiment dealt only with verbal expressions of attitude in a restricted cultural milieu. *(Arthur Secord, Brooklyn College.)*

NEUCHUTZ, L. N. Rehabilitation of the hard of hearing adult. *Amer. J. of Nursing*, 1944, **44**, 11.

The author's plea is for early recognition and immediate attention to the problem of the hard of hearing person. She cites a case in which the use of the voice was nearly lost through lack of attention at the proper time. Sources of literature of interest to the hard of hearing are given and helpful organizations listed. *(B. H. Simmons, Brooklyn College.)*

PATTIE, F. A., and KNIGHT, B. B. Why does the speech of stutterers improve in chorus reading? *J. of Abnorm. Soc. Psychol.*, 1944, **39**, 362-367.

Experiments with twelve subjects, five adults and seven adolescents, were made and the number of blocks recorded. Six situations were used in order to discover whether reading with another person is easier for the stutterer because it relieves him of the responsibility of communication or reduces the prominance of his performance. The six situations used were: (1) reading alone before an audience of at least three persons, (2) reading the same material in unison with the experimenter, (3) the subject and the experimenter reading the same material with the experimenter in another room and the subject listening to him over the telephone, (4) subject and experimenter reading together but reading different material, (5) subject and experimenter reading different material with experimenter in another room and subject listening over the telephone, and (6) the subject reading alone. In situations 2, 3, 4, and 5 the sub-

jects showed great improvement with little difference between situation 2 and 4 or 3 and 5. The experimenters conclude therefore, that the necessity for communication or the saliency of the stutterers' performance are negligible factors in the improvement shown by stutterers in choral reading. *(Anna Lapidus, Brooklyn College.)*

PRONOVOST, W. Influence of electronics on the field of speech. *Quart. J. of Speech*, 1944, **30**, 265-268.

New developments in electronics have been necessitated by the various requirements of military speech communications. These developments, such as the lip microphone and the throat microphone, will have an important effect upon the field of speech. The author surveys the trends he sees for the future. An increasing public consciousness of good voice and articulation will be promoted by improved amplifier circuits with better fidelity in reproducing the original speech quality. Developments in sound recording will permit improved fidelity of reproduction. In addition, continous recording for longer periods of time will be possible. The use of reels of wire in the new type magnetic recorders will make possible permanent recordings instead of the type which are now erased when a new recording is made. There will also be an increase in the number of situations in which speech is used for communication, for example the recent installation of radio telephones by railroads. Electronic circuits now available can be adapted to the construction of apparatus that will allow research in voice and articulation which has thus far been impossible. A new type of apparatus that will aid the progress of postwar speech rehabilitation has been designed to study the extent of brain injuries. *(Sarah Rosen, Brooklyn College.)*

REEVES, ZOE. Science triumphs over "The Lost Chord." *Hygeia*, 1945, **23**, 106-107.

This is a short article about the problem of restoring speech to the patient who has had a total laryngectomy. Although esophageal speech and the artificial larynx are described, the article deals particularly with a new invention called an electro-larynx. This is an external aid consisting of a cylinder four inches long and one inch in diameter, with a vibrator button at one end, connected to a battery by a cord. By placing the vibrator button against the throat and pressing the control switch, the mechanism sets up vibrations which travel through the pharynx into the mouth and these vibrations when molded by tongue, teeth, and lips produce audible speech. Some people learn to use this device very rapidly, others never acquire the proper technique. One of the disadvantages is a lack of tonal variety. A serious psychologic disadvantage is the conspicuousness of such a device. *(Anna Lapidus, Brooklyn, N. Y.)*

ROONEY, A. G. Voice work for the young deaf child. *Volta Review*, 1944, **46**, 558-560.

The article stresses the great importance of very early voice training for the deaf. Although the criticism that educators of the acoustically handicapped are excellent teachers of articulation but not good voice teachers is admitted to contain a great amount of truth, the marked voice improvement at junior high school levels observed by the author makes valuable the publication of the speech work done there. The chief premise is that the voices of young deaf children are usually sweet, lilting and musical and that, by continued use of singing and rhythm exercises, pleasant voice quality can be maintained. The psychological effect of singing in raising the spirits of the deafened is found most valuable. *(B. H. Simmons, Brooklyn College.)*

RUSSELL, C. M. Personality factors in a motor speech delay case. *Amer. J. of Mental Deficiency*, 1944, **49**, 171-176.

The case presented for discussion had received a final diagnosis of motor speech delay involving lack of handedness choice. It illustrates how a speech disorder is involved with other main functional difficulties in a child and how, during retraining, a lessening of one difficulty seems to have a mitigating effect on others. The course of retraining outlined was begun experimentally and designed specifically to help the child overcome his negativism which continually blocked his advancement. A description of results of the re-educational techniques carried on from infancy through adolescence is included. *(Arthur Secord, Brooklyn College.)*

SHILLING, C. W., EVERLEY, I. A., and HARRIS, J. D. Hearing tests: an evaluation. *U. S. Naval Med. Bull.*, 1945, **44**, 100-116.

This is a study of the various common clinical tests of hearing performed for the purpose of evaluating their significance and utility for testing auditory acuity as compared with the audiogram. The clinical tests used were (1) the spoken voice, (2) whispered voice, (3) the coin click, and (4) the watch-tick tests, all commonly used throughout the Navy for testing hearing. 2000 men were examined, of whom 500 were selected at random for use in this study. The ages and rating of the men were noted, as it was believed that some types of work have a greater tendency to reduce hearing acuity. The spoken voice test was shown to have no diagnostic value. The whispered voice and coin-click tests tend to screen out those ears with severe high-tone loss accompanied by more or less severe low-tone loss. The watch-tick test found these ears and also those which were normal for low tones, but which have a more or less severe high-tone loss. The

watch-tick test picked out many more ears as defective than the whispered voice and coin-click tests. None of the tests used appeared to measure low-tone hearing independently of high-tone hearing. The investigators also found that it was essential to standardize the technique of giving the various tests. The report includes a number of graphs for comparison of the various tests with the audiometer tests. *(Anna Lapidus, Brooklyn, N. Y.)*

THORNDIKE, E. L. Euphony and cacophony of English words and sounds. *Quart. J. of Speech*, 1944, **30**, 201-207.

Thorndike is testing the classical and to a great extent accepted theory of the pleasantness and unpleasantness of sounds and the carry-over of these sounds into pleasant and unpleasant reactions to words. The theory is well stated in the following quotation: 'It is probable that in particular the tone color of the vowels is significant, so that the fuller tone color of the open vowels is more pleasing to the ear than the poorer tone color of the closed vowels. . . . Moreover, the variety which a rich system of vowels offers makes a direct appeal. Among the consonants the voiced influence the ear more agreeably than the voiceless, which have only the effect of noise.' (Flagstad, Chr. B., *Psychologie der Sprachpadagogik*, p. 32.)

This study was based on sixty subjects, all students at Brooklyn College. Two rather extensive surveys were made. In one, the subjects were asked to report their liking or dislike for words. They were to consider how the word looked, how it sounded, but not the reality for which it stood. The results are interesting. The subjects found the sounds of *hoar, quaint,* and *coral* to be pleasant but the sound *whore, ain't,* and *quarrel* extremely unpleasant. This indicates that when a person believes himself to be reporting for sound alone he is, in fact, expressing his general attitude. The article may well indicate fields for productive research. *(Arthur Secord, Brooklyn College.)*

TURNBULL, W. W. Pitch discrimination as a function of tonal duration. *J. of Exper. Psychol.*, 1944, **34**, 302-316.

Accuracy of pitch discrimination decreases as tonal duration decreases. At 60 db. above threshold the stimulatory effect of a tone of 1024 cycles is nearly constant until reduction of duration to 0.1 seconds, from which point accuracy rapidly decreases to zero at around 0.01 seconds. A tone of 8192 cycles reaches decrease in discriminatory accuracy at 0.25 seconds with zero at 0.02 seconds. If the duration of the stimulus is reduced to less than 0.5 second, the accuracy of pitch discrimination of a tone of 128 cycles decreases but less steeply than the other two until the zero point is reached at about 0.03 seconds. A reduction, greater at relatively short durations, in accuracy of pitch discrimination is produced by a decrease in stimulus intensity. *(Helen Stewart Harrison, Louisiana.)*

WEBER, C. O. Strephosymbolia and reading disability. *J. Abnor. Soc. Psychol.*, 1944, **39**, 356-361.

The main concern of the author was to examine the incidence of reversal errors in the reading of low gain and high gain groups of readers taking a series of remedial exercises. The experiments, made in two separate years, show that college freshmen who fail to profit from remedial reading work do make more reversal errors in proportion to other errors. These low gain cases are also inferior to others in spelling and in average college grades. The differences in regard to reversal errors are not completely reliable, but they are extensive enough to deserve the renewed attention of students of the psychology of reading. No significant differences were found between low- and high-gain groups in regard to general intelligence scores, 'mirror writing' skills, susceptibility to distraction and to perseveration tendencies. *(Arthur Secord, Brooklyn College.)*

Et tu, Bantu!

Almost every Bantu man and woman is a fluent and sustained speaker, and Dr. Gordon Brown, who is working among one of the tribes, informs one that the most prevalent mental disturbance is in youths who realize that they are unable to become finished speakers.

W. I. THOMAS, *Primitive Behavior* (McGraw-Hill, 1937)

Words About Words

Yet even definitions cannot cure this evil in dealing with natural and material things; since the definitions themselves consist of words, and those beget others; so that it is necessary to recur to individual instances and those in due series and order.

FRANCIS BACON, *Novum Organum* (1620)

Book Reviews

Ernest H. Henrickson*

HAYCOCK, G. SIBLEY. *The Teaching of Speech.* Washington, D. C.: The Volta Bureau, 1942. Pp. 302.

THIS is a combination of an essay, for which the author received the Thomas Braidwood Gold Medal in 1928, and two papers written at various times without plan of assembling into book form. For this reason the second and third sections contain some repetition of the ideas and advice set forth in the essay, but add further analysis of the qualities that make for good speech and voice development, and elaborate on teaching techniques to attain that goal. The Braidwood Medal is given periodically by the National College of Teachers of the Deaf in Great Britain to perpetuate the name of Thomas Braidwood, who conducted the first school for the deaf in Great Britain in 1760, and to encourage research in connection with the education of the deaf child. The subject selected by the Committee in 1928 was: 'How best to promote the quality of naturalness in the speech of the deaf so as to ensure easy intelligible oral intercourse with those who hear.'

The author discusses the chief condition and requirements necessary for a satisfactory solution of the problem thus stated and offers practical suggestions to aid in arriving at a desired result. He realizes by admission in the introduction that the deaf child cannot be taught to speak with the quality and exactness of hearing people, but presumes that it is possible to improve the degree of naturalness of speech over that which had been attained at the time of the writing. The conditions which he feels would effect this improvement are set down as follows: 1. An early beginning at the age of three, if possible, but not later than five. 2. Small classes. 3. Trained experienced teachers with a good phonetic ear and good technique. 4. A speech atmosphere at home and at school where models of good speech are to be found.

He stresses the third condition and analyzes the acceptable speech of hearing people as a guide and example in teaching the deaf. He takes up, in order, breath control, cultivation of the voice, production of speech sounds, accent and emphasis and does what he can to explain a method for the development of each of these qualities in the deaf child.

He explains the analytic and synthetic methods of teaching the deaf and favors the synthetic as a beginning step. He states that in this way the deaf child will be encouraged to attempt speech even though it is incomplete and inaccurate. He suggests the teaching of speech elements as soon as possible so that this partial and imperfect speech can be corrected.

Realizing the difficulty of instructing in the technique of teaching speech to the deaf by the written word, the author tries to clarify his instruction by the following advice which deserves quotation: 'The best way for a teacher to diagnose the faulty voice of a deaf pupil, whatever the fault may be, is to imitate the fault, and then to analyze it. By so doing, the teacher can truly realize the kind of voice a pupil is producing. Often a teacher, listening attentatively, feels that something is wrong with a pupil's voice but is at a loss to say exactly what the fault is. But let him accurately reproduce the tone and pitch of the offending sound and he will generally become conscious of the true nature of the fault his pupil is making and be able to deal with it understandingly and effectively.'

This book has had two printings in England and two in the United States, which emphasizes its popularity among teachers of the deaf. While Mr. Haycock's analyses and techniques are not without challenge, there are a number of helpful hints to be gained from the book both for the beginning and experienced teacher.

MILDRED A. MCGINNIS
Central Institute for the Deaf

LAWSON, FRANKLIN D. *The Human Voice.* New York and London: Harper and Brothers, 1944. Pp. ix + 94.

THIS book attempts 'to present in a simple manner a practical and easy method for the correct production of the speaking and singing voice.' According to the author the principles which he presents in his book are based upon his technical knowledge as a medical doctor and upon his 'successful demonstration' as a professional singer.

The book is divided into three sections: The Speaking Voice; The Singing Voice; and a part headed Supplementary Information. In Part One there are eight drills, three of which are on breathing, two on tone production, one on vowel formation, one on the perfection of consonants, and two on 'words.' Section Two contains six-

*Ernest H. Henrikson (Ph.D., Iowa, 1932) is Director of the Speech Clinic at the University of Colorado.

teen drills, all of which are specifically concerned with the training of the singing voice. In Part Three the author has included some miscellaneous information, most of which is apparently written for the singer. Dr. Lawson has included in this section: a few practical hints with reference to public performances; a limited number of questions and answers concerning speech and singing; definition of vocal and musical terms; charts for recording one's personal repertoire and personal public appearances; and a plan whereby his book may be used in class training.

From the standpoint of the speech teacher one of the more obvious objections to the author's treatment of voice training is the apparent absence of phonetic training in his experience. For example, it is stated that there are six principal vowel sounds—*ee, aye, ah, awe, oh, oo (sic)* (p. 24). However, in his chapter, Various Vowel Sounds, Dr. Lawson lists some 50-odd vowels in the English language (pp. 25-27). The letter *q* is called an unvoiced consonant, and *x* is said to be a voiced consonant (p. 28). There are other items of special interest to the speech correctionist, not the least of which is the statement that a lisp can ordinarily be cured by 'vigorously forming the consonants S and Z with the tip of the tongue drawn back as far as possible' (p. 72).

Although the author states that Part One alone may be used if one is interested in training only the speaking voice, it is evident from his greater emphasis in Part Two and from his suggestions in the third section that the book was written primarily as a drillbook for the music student. The speech drills which are included are basically sound and could be used to some advantage in voice improvement classes. But, aside from giving the student of phonetics an opportunity to see his subject as a member of an allied profession sees it, the book has little to offer the speech student which has not already been offered in more detail in several of the recent speech and voice texts.

ROBERT HARRINGTON
University of Denver

BOOME, E. J., BAINES, H. M. S., and HARRIES, D. G. *Abnormal Speech.* Cleveland: The Sherwood Press, 1939. Pp. 162.

COORDINATION is the primary factor in good speech, the authors of this volume believe, expressing the viewpoint that in the treatment of speech problems the entire personality of the patient must be borne in mind, and that all exercises for the development of coordination should be based on relaxation and rhythm. In expounding this opinion, the authors devote chapters to detailed analyses of speech disorders, and to the treatment of these disorders, with special attention to the speech of the mentally defective and the 'difficult' child.

While this approach to the problems of speech therapy is not novel, and while some of the aspects will no doubt be frowned upon by many experts, the volume, nevertheless, should prove of some help to teachers who do not have specialized training in speech problems, to parents of speech-handicapped children, and to superintendents of institutions, for whose use the authors intended the book.

Of advantage to such readers will be the simplicity of style, directness of approach, and the clearly detailed exposition of the more familiar speech problems. The glossary included at the end of the volume should also be of value. The authors devote particular attention to the speech problems of mentally deficient children and take the highly commendable viewpoint that the speech difficulties of such children should be given specific attention, pointing out that improvements in speech frequently effect improvement in general behavior.

To the lay-reader unfamiliar with methods of speech rehabilitation, the chapter devoted to specific body and speech exercises will be helpful.

The volume would have been even more helpful had the authors devoted more space to actual cases illustrating the problems cited. Such cases as are introduced are brought in by the authors in an incidental manner and are only sketchily touched upon.

Speech therapists will disagree with many of the generalizations expressed by the authors, such as the statement that 'the lisper has usually a constitutional dislike of accuracy in any movement; he has difficulty in performing the simplest hand exercises with precision . . . is often deficient in physical energy and thinks slowly in consequence.' Nevertheless, the book should be a helpful guide to lay-readers in coping with the problems of speech difficulties encountered in the family or in the school.

IDA L. SALZ
Central Institute for the Deaf

BRYANT, DONALD C., HEWITT, BARNARD, WALLACE, KARL R., and WICHELNS, HERBERT A. (Chairman), Editors. *Studies in Speech and Drama in Honor of Alexander M. Drummond.* Ithaca, N. Y.: Cornell University Press, 1944. Pp. viii + 472.

SPEECH pathology has its roots in a number of fields—speech, medicine, psychology, and so on. Both in theory and in practice the speech correctionist finds himself closely associated with the workers and

activities of these fields. Thus he is vitally interested in significant publications emerging from these areas. *Studies in Speech and Drama in Honor of Alexander M. Drummond* is such a work. It is a monumental work honoring a monumental pioneer in the field of speech. Included in the book are thirteen studies dealing with drama, ten with public speaking and rhetoric, and two with American pronunciation. The contents of these last two deal with materials most nearly related to the work of the speech correctionist. But the whole book should be of value and interest to him, both because of the significant material from an allied field which it contains, and because of the varied and interesting methods of scholarly research which it presents.

ERNEST H. HENRIKSON
University of Colorado

DORRANCE, GEORGE M., with the assistance of ENAYAT SHIRAZY. *The Operative Story of Cleft Palate.* Philadelphia: W. B. Saunders, 1933. Pp. ix + 564.

THE *Journal of Speech Disorders* was begun in 1936 and the present book review section was introduced in 1943. It is part of the editorial policy of the *Journal* to bring to the attention of its readers certain important books published before these dates. Among the books published more than ten years or so ago there are many, of course, so widely used at the present time, or so well known in any case, that there is little point in reviewing them now. There are, however, a number of 'older' books which do not come readily or uniformly to the attention of the younger students of speech pathology, and which have not only historical significance but also a continuing professional value. Such a book is Dorrance's *The Operative Story of Cleft Palate.*

It is not the purpose of this review to give an exhaustive summary or detailed evaluation of this important book. It is the purpose, rather, to call it seriously to the attention of students who may not have examined it, with the judgment that they will find the study of it rewarding. Steps should be taken to see to it that college and university libraries make it available to professional students, the more particularly because even good books go out of print eventually and this book was published over twelve years ago. No professional library is quite complete without it.

The book is abundantly illustrated and contains a great deal of well ordered anatomical information presented in functional relationship to problems of etiology, surgical repair, and speech impairment. The von Langenbeck and the push-back operative techniques are well presented, with illuminating historical background, and with clear reference to the types of cleft to which each is and is not adaptable. Other types of surgery are also covered. The mechanism of velopharyngeal closure, as understood in 1933, is carefully detailed. Anyone seriously concerned with problems of cleft palate and cleft lip will find the material in this book practically indispensable.

WENDELL JOHNSON
University of Iowa

CALL FOR PAPERS

A FORMAL call for papers and a complete statement concerning the next annual convention of the American Speech Correction Association will be published in the September issue of the *Journal.*

In the meantime, the Program Committee has set September 30 as a tentative deadline for abstracts of papers to be read at the next convention. In addition to summarizing the paper, each abstract must indicate (a) the time required for presentation, (b) details on the type of visual or audio aids which will be needed, and (c) other requirements. The full name and the professional affiliation of the author should be indicated.

As indicated above, the exact time and location of the next meeting and further specifications concerning the program will be announced in the *Journal* in September.

CLARENCE T. SIMON, *Chairman of the Program Committee,*
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